S. HRG. 100-332

NOMINATIONS—OCTOBER

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

OCTOBER 15, 1987

THOMAS P. RONA, TO BE ASSOCIATE DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY POLICY

OCTOBER 28, 1987

FRANCIS J. IVANCIE, TO BE A COMMISSIONER, FEDERAL MARITIME COMMISSION; FRANCIS H. FAY; AND WILLIAM W. FOX, JR., TO BE MEMBERS, MARINE MAMMAL COMMISSION

Printed for the use of the
Committee on Commerce, Science, and Transportation

U.S. GOVERNMENT PRINTING OFFICE

79-481 O WASHINGTON : 1987

S261-14

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ERNEST F. HOLLINGS, South Carolina, *Chairman*

DANIEL K. INOUYE, Hawaii
WENDELL H. FORD, Kentucky
DONALD W. RIEGLE, JR., Michigan
J. JAMES EXON, Nebraska
ALBERT GORE, JR., Tennessee
JOHN D. ROCKEFELLER IV, West Virginia
LLOYD BENTSEN, Texas
JOHN F. KERRY, Massachusetts
JOHN B. BREAUX, Louisiana
BROCK ADAMS, Washington

JOHN C. DANFORTH, Missouri
BOB PACKWOOD, Oregon
NANCY LANDON KASSEBAUM, Kansas
LARRY PRESSLER, South Dakota
TED STEVENS, Alaska
ROBERT W. KASTEN, JR., Wisconsin
PAUL S. TRIBLE, JR., Virginia
PETE WILSON, California
JOHN MCCAIN, Arizona

RALPH B. EVERETT, *Chief Counsel and Staff Director*
W. ALLEN MOORE, *Minority Chief of Staff*

CONTENTS

LIST OF WITNESSES

OCTOBER 15, 1987

	Page
Opening statement by Senator Rockefeller	1
Rona, Dr. Thomas P	4
Biographical sketch	2
Prepared statement	6
Questions of the Chairman and Senator Riegle and the answers	9
Questions of Senator Danforth and the answers	16
Questions of Senator Pressler and the answers	20
Questions of the minority and the answers	23

OCTOBER 28, 1987

Opening statement by Senator Breaux	29
Opening statement by the Chairman	30
Opening statement by Senator Packwood	31
Ivancie, Francis J	34
Biographical sketch	33
Prepared statement	34
Hatfield, Hon. Mark O., U.S. Senator from Oregon, statement	32
Questions of the Committee and the answers	37
Fay, Dr. Francis H	42
Biographical sketch	41
Questions of the Chairman and the answers	49
Fox, Dr. William W., Jr	44
Biographical sketch	43
Questions of the Chairman and the answers	53

DR. THOMAS P. RONA, TO BE ASSOCIATE DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY POLICY

THURSDAY, OCTOBER 15, 1987

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The committee met, pursuant to notice, at 4:35 p.m., in room SR-253, Russell Senate Office Building, Hon. Jay Rockefeller presiding.

Staff members assigned to this hearing: Pat Windham, professional staff member; and Ruth Johnson, minority professional staff member.

OPENING STATEMENT BY SENATOR ROCKEFELLER

Senator ROCKEFELLER. I am calling our next hearing to order in order to consider the nomination of Dr. Thomas P. Rona to be Associate Director of the White House Office of Science and Technology. If confirmed, Dr. Rona will serve as principal deputy to White House science advisor, Dr. William Graham.

I would ask Dr. Rona to come forward, please, and have a seat at the witness table. Dr. Rona has a long and distinguished career at MIT, at Boeing and at the Defense Department. He currently serves as science office's assistant director for government programs, a senior staff position.

Dr. Rona, we welcome you. I welcome you. There is only one here, so it is me. And I would be very interested in any opening remarks that you might like to make, or if you have any comments in what you have been listening to for the last couple of hours.

Your written statement obviously will be included in its entirety in the official hearing record.

[The biographical sketch follows:]

ERNEST F HOLLINGS SOUTH CAROLINA CHAIRMAN
DANIEL K INOUYE HAWAII
WENDELL H FORD KENTUCKY
DONALD W RIEGLE JR MICHIGAN
J JAMES EXON NEBRASKA
ALBERT GORE JR TENNESSEE
JOHN D ROCKEFELLER IV WEST VIRGINIA
LLOYD BENTSEN TEXAS
JOHN F KERRY MASSACHUSETTS
JOHN B BREAUX LOUISIANA
BRUCE ADAMS WASHINGTON
JOHN C DANFORTH MISSOURI
BOB PACKWOOD OREGON
NANCY LANDON KASSEBAUM KANSAS
LARRY PRESSLER SOUTH DAKOTA
TED STEVENS ALASKA
BOB KASTEN WISCONSIN
PAUL S TRIBLE JR VIRGINIA
PETE WILSON CALIFORNIA
JOHN MCCAIN ARIZONA
RALPH B EVERETT CHIEF COUNSEL AND STAFF DIRECTOR
W ALLEN MOORE MINORITY CHIEF OF STAFF

United States Senate
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
WASHINGTON, DC 20510-6125

STATEMENT FOR COMPLETION BY PRESIDENTIAL NOMINEES

(If more space is needed, please use attached REMARKS sheet)

A. BIOGRAPHICAL DATA

1. Name: RONA (Last) THOMAS (First) PAUL (Other)

Address: 5902 Mt. Eagle Drive (Current residence)
Alexandria, VA 22303

Executive Office of the President
Office of Science and Technology Policy
Room 5013, NEOB, 17th&Penn Ave, NW
Washington, D. C. 20506

2. Position to which nominated: Associate Director, OSTP
Date of nomination: June 1987

3. Date of birth: January 17, 1923 (month) (day) (year)
Place of birth: Budapest, Hungary

4. Marital status: Married
Full name of Spouse: Jinnett McBride Rona

5. Names and ages of children: John Christopher Rona (29); John Michael Rona (35); Thomas Paul Rona, Jr. (33); Marie Helen Rona (34)

6. Education:

Institution	Dates attended	Degrees received	Dates of degrees
Ecole d'Electrictie and Mechanique Industrielle (A.K.a. "Ecole Violet")	June 1939 Sept 1940	Brevet Industriel (HS Equivalent)	Sept 1940
Ecole d'Electrictie and Mechanique Industrielle	Sept 1940 June 1943	BS in ME	June 1943
Ecole Superieure d'Electrictie	Sept 1943 June 1945	EE (Graduate (Degree)	June 1945
University of Paris (Sorbonne)	June 1945 June 1946	Certificate of Lic. in Physics (Electronics)	June 1946
Massachusetts Institute of Technology	June 1952 June 1955	Sc.D. in E.E. with Minor in Industrial Management	June 1955

7. Employment record:

From	To	Name of Employer	Address	Type of Work
4/3/84	Present*	Department of Defense (OSD)	The Pentagon, Washington,DC	Policy Development
7/20/59	3/84	The Boeing Company	Seattle, WA	Requirements Analysis
9/52	7/19/59	Massachusetts Institute of Technology	Cambridge, MA	Teaching and Research
9/51	9/52	University of Montreal (Ecole Polytechnique)	Montreal, PQ	Teaching
8/51	9/51	Unemployed		
9/49	8/51	Self-Employed	Paris, France	Lumber Business
8/47	9/49	Self-Employed	Duala, Cameroun	Consulting
7/46	8/47	Office National d'Etudes et Recherches Aero-nautiques	Paris, France	Research
6/43	6/46	Thompson Houston Company	Paris, France	Research

* Since 12/86 Detailed to the Office of Science and Technology Policy as Assistant Director for Government Programs

Consulting: Edgerton, Germeshausen and Grier, Boston 1955-1959
USAF (Holloman Air Force Base) 1956-1959
Babcock and Wilcox Company, Lynchburg, VA 1958-1979

8. Government experience.

June 1956 through July 1959	Consultant to U.S. Air Force, Holloman AFB
June 1982 through April 1984	Army Science Board - Member
March through April 1984	Consultant, DOD/OSD(P)
April 1984 to date	DOD/OSD(P) Deputy Director for Space and Intelligence Policy (through May 1985) then Special Assistant for C^3I/Space Policy
Since December 1986	Detailed to OSTP as Assistant Director for Government Programs

9. Political affiliations activities: List all memberships and offices held in or financial contributions and services rendered to all political parties or election committees during the last 10 years.

From 1979 through 1983 State Republican Party, Washington

Aggregate political contributions not exceeding $300 over these years.

STATEMENT OF DR. THOMAS P. RONA

Dr. RONA. Thank you, Mr. Chairman. I will make a few very short opening remarks and then essentially keep myself at your pleasure for any questions you or your colleagues may have to ask.

It is obviously a privilege to be here. It is also a pleasure. The problems I see in this office are challenges and enormous responsibilities, but also enormous opportunities for being useful.

At this point I am responsible for government program-related science and technology and, if confirmed, this responsibility will be expanded to cover international science and technology, the kind of problems you were just discussing now, and also the academic and privately supported science and technology.

I would like to explain how I see this overall responsibility and then perhaps touch upon some illustrations. First, I want to make the point that the task involves an enormous range of disparate domains, ranging from the infinitesimally small to the interplanetary and intergalactic distances.

They all contribute in some way to the security, the wellbeing, the self-image, and the competitiveness of this nation. And if we are not careful, they lead to the distortion of our priorities and distortion of our research allocations.

Now, we can ill afford this. As some of the witnesses pointed out a few minutes ago, 30 years ago the U.S. was the dominant power in the world and could afford a slight misallocation. That was a luxury.

Today we are competing, first against the Soviet Union in military terms, but also against our good friends and allies who have different styles, and obviously are just as industrialized as we are.

I will give you a few glimpses of how diverse this job is. Let me start with biosciences and biotechnology. It is almost ironic that a few decades ago we made some enormous breakthroughs, so that we are now really at the core of understanding what life substance is about, and at the same time destiny wants us to face something like AIDS, which creates scientific, medical, social, and probably political issues as well.

Obviously, the population, sensitized by our progress, expects solutions. And what really happens is we are trying to reallocate the resources in a rational manner.

Well, let us see. At the other end of the scale, somebody chooses to explode a supernova several thousands of light-years away. I am convinced that this is not a NASA ploy to get more budget. It just so happens. And sure enough, the office has been asked to look at the possibility to examine by means of terrestrial and space-based sensors the opportunity, unique, century-rare opportunity to examine such a phenomenon.

Well, one may say this is a luxury, but please remember that most, almost all, of the fundamental advances came from astronomy and as of late from astrophysics.

I am sure you are familiar with our efforts in understanding the superconducting supercollider, what are the mysteries in the infinitesimal particles that will collide, and what we will discover with those we do not really know. But such a facility is expected to

assure the leadership for the U.S. in high energy physics for at least a few decades to come.

I am just mentioning a few which I have been involved in. Now, you once again have been touching upon the competitiveness, on such things as microelectronics and semiconductors. We barely finished a semiconductor study. As a matter of fact, it is not quite completely documented yet, and superconductors came on the scene.

Senator ROCKEFELLER. Could I ask you a question about semiconductors?

Dr. RONA. By all means.

Senator ROCKEFELLER. First, we all know about Sematech, that proposal which is more or less being supported by the Defense Department. The administration has not taken a position yet on Sematech, and I am just wondering if OSTP is looking at that and if you expect to be making recommendations, if confirmed, which I am sure you will be—you certainly have my vote—on Sematech?

Dr. RONA. The answer is yes. A few days ago, Dr. Graham presented to the full economic policy council the results of that study, and I expect that within a matter of weeks there will be a formal recommendation.

Upon your request, I will gladly comment upon what that recommendation might be. But it is still in the confidential domain.

Senator ROCKEFELLER. Of course. May I ask another question? And I am interrupting your opening statement, but I assume you will not mind too much.

There is a lot of concern about the wonderful American university research capability. The other side of that, of course, is that American research laboratories are going downhill physically very rapidly.

We are not investing in them, and as a result fairly soon, if not now, the capacity to attract our best minds into scientific research pursuits is going to be more difficult, because many of our universities simply are not keeping up physically with their laboratories.

Now, there are various proposals, one being to have the National Science Foundation go back into that through financial help, et cetera. Could you assess for me how you see our university laboratory and research situation?

Mr. RONA. Yes, Mr. Chairman, I will try a stab at it. The budgeting of universities has been a very difficult problem for the past three decades at least. And as usual, they have to pay their salaries, their operating expenses, and the facilities investment was lagging.

At the same time, the true basic research, which is the role of the universities, requires substantially larger investment per capita or per dollar of research in facilities. They change very rapidly. They become very rapidly obsolete.

In that situation, the situation is indeed critical. So many recommendations are being considered. I personally happen to believe that a fair accounting, including the rapid depreciation of facilities, will take care of the problem. But I fully realize that there are other recommendations and they are perhaps perfectly viable.

Senator ROCKEFELLER. Do we have a system wherein, for example, MIT, Harvard, Cal Tech, and Stanford—what we are discussing

does not apply to them? Maybe it does. I am interested in your comments.

Are we developing a tier system in this country, where we have a few universities to which much Federal money and private money, foundation money, et cetera, goes, and therefore they are keeping up on laboratory facilities, research capacity, but that underneath that top level there is a sinking in the second and third level of universities?

Dr. RONA. Yes.

Senator ROCKEFELLER. So that only those who go to the very best ones now have——

Dr. RONA. Yes, there is an instability in the system. Once a university gets real good and has a high reputation, it attracts budgets, it attracts scientists, and then the effect keeps on compounding. And because there is only a limited amount of resources available in the country, therefore the rest of it, those who are not so fortunate, are obviously at a disadvantage.

Senator ROCKEFELLER. One final question. The idea of a possible U.S.-Soviet Mars missions has been in the news a good deal in recent months. Is the administration exploring this idea with the Soviet Union, and do you think they should be, and what are your reasons?

Dr. RONA. The answer is yes, the administration—excuse me. Certain segments of the administration have been exploring that for the better part of 15 years. Now, as of recently, because of Soviet initiatives it has become a really hot topic.

If your question is are we in some way committed to such a mission, either as a nation or in cooperation with other nations, the answer is at this point we have no commitment. We are very interested and believe that in the longer term future that will be part of our program. We have no such commitment at this point.

Senator ROCKEFELLER. Dr. Rona, there are many things that I would like to discuss with you. But I know this, that you have a very impressive history, a very impressive background. You are very highly regarded by people that I have talked with, and I know that Dr. Graham very much wants to have you working with him.

So speaking for myself, I think you are an excellent candidate for the job. This is a nomination hearing. When we have a markup session in our committee, I will report very favorably on you and your history and your capacity for this job.

And I would love to be able to assure you that you will be confirmed. I certainly think you will. In any event, I am very glad that you came and I am honored by your presence.

Thank you very much.

Dr. RONA. Thank you very much, Mr. Chairman.

[The statement follows:]

STATEMENT OF DR. THOMAS P. RONA

Thank you, Mr. Chairman.

It is my privilege to appear here as the President's nominee for Associate Director of the Office of Science and Technology Policy. Since December 1986 I have been detailed by the Department of Defense to the Office and I have had ample opportunity to familiarize myself with the problems and challenges of its sphere of responsibilities, but also with the immense opportunities at hand under the leadership of its director, Dr. William W. Graham, who also serves as the President's science adviser.

My current assignment is Deputy Director for Government Programs—that is, mostly handling the science and technology issues arising from the programs of the Federal Government. Should I be confirmed, this same responsibility would be formally expanded to cover international science and technology issues and those of direct concern to the academic and privately supported communities.

In this statement, I would like to characterize my perception of the problem areas I expect to encounter, with a few illustrations of the proposed approaches to solutions and expected outcomes.

I would like to offer a summary of my qualifications for this assignment and to complete the statement with the assurance that, should I be confirmed in this new position, I shall endeavor to cooperate fully with this committee, as well as with other congressional committees, to further the Nation's cause to my utmost ability.

Within the past few months, the vital role of science and technology in the day-to-day life of the United States came in sharp focus in many disparate domains ranging in scale from the infinitesimally small to interplanetary or even intergalactic proportions.They all contribute in many intricate ways to improve the security, the well-being, the self-image, and the competitiveness of the Nation; they all lay claim on our scarce dollar and talent resources, they all clamor for budget priorities. We can ill afford distortions in resource allocations in the presence of vigorous ideological and military challenge by the Soviet Union, facing the "peaceful" but just as vigorous economic competition from our closest allies, who who like us are highly industrialized. In addition, we live in a world where within two decades the less developed nations may account for three quarters of the world's population, where their development will place increasing demands on the world's energy and raw material resources, and where their political alignment will be of great concern to the nations described as powerful today.

Let me offer a glimpse of the diversity and the possible impact of many of our areas of immediate concern. Let me also emphasize that these are just a sample of those in which I have been involved, even though some of my colleagues are carrying the principal burden. I would be happy, of course, to discuss any of these in more detail, should that be the committee's pleasure.

The members of the committee know the great advances in biosciences and biotechnology over the past two decades. Some of these are fundamental in the sense that they give us a much increased understanding of the molecular basis of life phenomena; some others are in the domain of applied sciences, e.g., the detailed mapping of the human genome. The population at large came to expect miracles, and political pressures are building for finding solutions to genetic and degenerative diseases. In the past few years the AIDS problem came to the fore, raising scientific, medical, social, and possibly political issues. I use this domain as an illustration; even in a rapidly advancing field, "surprises" are occurring and press for solutions—or at for least reallocation of resources.

While we are on the subject of surprises, and quite independently of any initiative by this administration, many thousands of light-years away a "supernova" appeared in the sky, a phenomenon observed only once in several hundred years. It also appears that this particular star explosion shows characteristics that suprise even the specialists, predictably, demands have been made on our office to help provide means to examine the supernova by means of terrestrial and spaceborne instruments. We should remember that some of the most fundamental scientific advances of the past resulted from astronomy and (more recently) astrophysics.

At the other end of the dimension scale, the Office has considered and advised the President on the superconducting super collider facility. This resulted in an announcement to build a 40 teraelectron-volt (equivalent) accelerator at the cost of about 4.5 billion dollars to probe the innermost secrets of elementary particles. Such a facility, to be operational in the mid-1990's, should attract the best talents from all parts of the world and assure leadership for the U.S. in high-energy physics at least for the next few decades.

Surprises occur at a rate that defy systematic planning. The Office has been conducting an in-depth study, with the help of the White House Science Council, to ascertain the causes of non-competitiveness of the U.S. microelectronics industry. In January of this year it became common knowledge that new types of superconductoring materials promise revolutionary changes in industries as diverse as computers, power machinery, and transportation, an industry-government-academia conference at the end of July 1987, under OSTP auspices, was aimed at assuring U.S. competitiveness in this field.

The Office is also coordinating a nationwide study on the technical potential, the requirements, and applications of supercomputers. Such applications, involving billions of operations per second and calling for sophisticated wideband information ex-

change networks, are expected to contribute to the scientific and technological development potential of the Nation. At the same time, and independently of this study, the Office also retains cognizance of the research work in the field of neutral networks and artificial intelligence. These latter two are examples of research at the forefront of science, but, important areas of potential application.

Directly impinging on the Nation's security is the responsibility of this Office to develop the basis for advising the President on the technical aspects of the strategic defense initiative.

Not less important are the tasks associated with the scientific and technical aspects of the Nation's space policy. Here again, the Office inherited some of the immediate problems resulting from the *Challenger* accident, unfortunately compounded by failures of military launchers at roughly the same time. In the meantime, the Soviet Union appears to forge ahead in many areas of manned space missions, planetary instrumented missions, heavy-lift launchers, and a modified version of the U.S. space shuttle. The challenge facing this office is to conciliate both near-term and ambitious long-range goals, the technical and programmatic realities of the U.S. space launch recovery programs, and the current budgetary constraints. The national aerospace plane is to be pursued under this policy.

Concerns about the global environment are also in the forefront of our thinking. The accumulation of carbon dioxide, methane and various pollutants could result in long run changes in the global temperature or perhaps in the ozone layer concentrations. Some request stringent control measures, which might impinge on our industrial overhead costs and competitiveness.

The Office is being called upon to develop the technical bases for policy recommendations aimed at ensuring the Nation's energy security. The scientific and technical problems related to energy security range from better ways of locating and extracting the currently "unrecoverable" U.S. oil reserves to advanced technology nuclear reactors that could be designed to reduce and even eliminate the pressurized-water reactors.

Still another dimension of our concerns is the degree and the modalities of cooperation and competition in areas of science and technology with foreign nations. The Director of our Office, Dr. Graham, has recently played a key role in formulating the new terms of scientific, technical, and economic cooperation with the People's Republic of China. In this case, it is in our interest to help the People's Republic of China to achieve its stated objectives of peaceful, industrial modernization, while ensuring that their potential will not be used against the United States interests or those of its allies. Other examples of international cooperation and competition are major population foci such as India and Brazil.

When facing problems of such diversity and possible impact on our national resource investments one must always keep in mind a hierarchical goal structure where proposed pursuit is placed in the context of broader goals that are less likely to fluctuate with time or with changing administrations. We continually assess proposed "solutions" in terms of theoretical approach or conceptual system developments. Almost invariably we are led to identify scientific and technology approaches that would not only satisfy one given set of goals, but also alleviate the conflicts between several competing goals. Whenever this is not clearly possible, at least we can identify the technical approach to be pursued, set the proposed activities in context, and establish the rationale for budget priorities.

My experience, now spanning forty years of academic and Government research, industrial research management, and (in the last decade) concentration on policy development will stand me in good stead, should I be confirmed.

In closing, I paraphrase Dr. Graham's words during his own confirmation hearings. The counsel and support of the Members of Congress and of their staff are essential in our continued national endeavor aimed at success and prosperity, I pledge close communication and cooperation, should I be confirmed, between Congress and my activities within the Office of Science and Technology Policy under Dr. Graham's leadership.

This ends my prepared statement and I shall be pleased to entertain questions from the members of the committee.

Senator ROCKEFELLER. This hearing is adjourned.

[Whereupon, at 4:48 p.m., the committee was adjourned.]

[The following information was subsequently received for the record:]

QUESTIONS FROM SENATORS HOLLINGS AND RIEGLE

A. GENERAL QUESTIONS

(1) QUESTION You currently serve in the Office of Science and Technology Policy (OSTP) as Assistant Director for Government Programs. What duties do you perform in that position, and on which specific areas of science and technology do you focus?

ANSWER (1) In my current position I support the Director of OSTP in all his statutory activities as defined by the 1976 legislation enabling the functions and duties of OSTP. My particular areas of responsibility include the science and technology issues associated with the programs of the DOD, NASA, NOAA, DOE and others. In recent months, in view of my nomination for the position of Associate Director of OSTP, Dr. Graham has exposed me to an increasing extent to issues arising from other areas of federal activity: e.g., those associated with the Office's work on semiconductors, superconductors, changes in the global environment, international competitiveness, measures to control the spread of AIDS, and others.

(2) QUESTION Your expertise and experience are primarily in the areas of defense and aerospace. If confirmed as an Associate Director of the Office of Science and Technology Policy, will your activities focus on these two subject areas?

ANSWER (2) I do not expect so. In fact, even though I have spent almost a quarter of a century in the employ of one large aerospace company, for more than 15 years my work involved the study of broad national requirements, going well beyond defense and space. Urban development, rapid transit, control of liquid toxic wastes, electronics manufacturing were just a few of my many areas of interest. At present, I have been designated to serve as the Deputy Director, with responsibility for all areas of the OSTP work. Should I be confirmed, I expect to retain overall responsibility for defense and aerospace, but in addition to cover activities derived from issues such as the global environment, international competitiveness, and university scientific/technical programs.

(3) QUESTION The National Science and Technology Policy, Organization and Priorities Act authorizes the President to appoint up to four Associate Directors at OSTP. If confirmed, you will fill the first of these four positions. Does the President intend to nominate any individuals for the other Associate Director positions? In particular, does he intend to nominate anyone with a background in civilian science and technology, or international economic competitiveness?

ANSWER (3) I am not authorized to speak of the future intentions of the President, but from my conversations with Dr. Graham, Science Advisor to the President, I have gathered the conviction that he (Dr. Graham) does not intend to propose additional Associate Director nominations.

B. U.S. AND SOVIET SPACE PROGRAMS

(1) You recently served as a U.S. delegate to the Space Future Forum in Moscow. You also were quoted in several U.S. papers as to your impressions of that forum.

(a) QUESTION In your opinion, should the United States broaden the degree of cooperation between the United States and the Soviet Union in the areas of space science beyond the scope of the 1985 agreement?

ANSWER (4) Not at this time. Our agreements with the Soviet Union are relatively recent and we have no meaningful track record as to the relative advantages and disadvantages accruing to the U.S. from the activities resulting from these agreements. Should future assessment show net benefits for the U.S. space program and should at that time the political considerations be favorable, we may wish to revisit the status of our cooperative activities.

(b) QUESTION Would the United States benefit from further cooperation with the Soviet Union in the area of space science and technology?

ANSWER (5) I cannot answer this question categorically. Some areas of potential cooperation may appear to offer net scientific advantages to the U.S. -- mostly in the exchange of scientific information. Supplying designs or hardware would raise the issues of undesirable technology transfer, and thus should be referred to the cognizant Interagency Group, [IG(TT)]. Based on the IG(TT) findings NSC, with the advice of OSTP, can make recommendations for the President's decision.

(c) QUESTION Can cooperative programs that include hardware be arranged so as to preclude any technology transfer problems?

ANSWER (6) Again, this question must be answered on a case-specific basis. In some instances, the critical technologies involved may be available to the Soviet Union from other sources. If so, while transfer from the U.S. is not desirable, the risks may be overshadowed by the advantages of the proposed cooperation. However, in general, the U.S. should at this point proceed with extreme caution and subject technology transfer issues to Interagency review as stated above (Answer #5).

(d) QUESTION What is your prognosis for joint U.S. - Soviet mission to Mars? What conditions must exist for such a cooperative endeavor to become a reality ?

ANSWER (7) At this point, the large-scale Mars missions (i.e., those calling for massive automated equipment and/or human exploration) are still in the stage of long-range planning for both the Soviet Union and the United States. While the Soviet Union is publicly declaring its intent and publicizing its plans, there appears to be no firm programmatic commitment at this time. The chances for a joint U.S. - Soviet Mars mission would be increased if the U. S. decides to commit to a Mars manned mission and if the relations between the two countries remain stable and cooperative in critical areas other than space endeavors over a period exceeding 10 years.

In making this statement, I assume that the U. S. will have recovered its (diversified) space launch capability and be the in the process of implementing a vigorous space science and exploration program on its own. (The cooperative Mars venture should be seen as only one of the many space undertakings, rather than the vital centerpiece of the U.S. space program.)

I also assume that there will be a tangible advantage for the U.S. scientific goals in space resulting from the cooperation.

(2) QUESTION What is your assessment of the Soviet Union's space program, and how does the U.S. program compare?

ANSWER (8) The Soviet Union has conducted its space program over the past three decades with a remarkable degree of commitment and continuity, with a clearly defined long-term strategic goal of global dominance of space. This long-term view has allowed them to overcome their initial handicaps relative to the United States: (1) smaller economic base to support an aggressive space program, (2) lack of sophisticated technology, and (3) relatively primitive launch infrastructure. They have also recognized the immense prestige value of manned space activities and of scientific endeavors; they appear to have no public contention in regard to civil vs. military space activities. At this point, the Soviets are ahead in diversified and robust launch capability and operational experience in using this capability for both civilian and potential military purposes; they have tested one heavy-lift launcher in the 200,000-lb payload class; they are readying their own version of a partially recoverable

shuttle, to be launched within the next 12 months or so; they have logged in excess of 5,000 man-days in space and continue manned space activities in their (primitive, but continually improved) space station; they have repeatedly demonstrated operational proficiency in tying their space-based military enhancement functions to the needs of their terrestrial forces.

By way of contrast, the U.S. space program appears to suffer from significant weaknesses. Some of these are traceable to prior policy decisions, some others are the result of unwise design choices, compounded by the effects of major accidents. Even so, the U.S. has an unexcelled record of instrumented planetary exploration; it has demonstrated expendable launchers in the 300,000-lb class as early as 1967 (the SATURN V) and manned space facilities in the late 1960s (SKYLAB), both quite ahead of what the Soviet Union is proudly claiming now, but we have not elected to build on these capabilities toward well-chosen long-term goals.

The U.S. still enjoys an important relative lead in spacecraft and payload technology and design; its launch infrastructure is almost immobilized now, but has important procurements under way for expendable launchers and is in the process of replacing the lost shuttle orbiter; its heavy-lift launcher programs are still under consideration, but are not likely to bear fruit before 1994-95. The current contingencies associated with the shuttle recovery and the space station development place the NASA space science and planetary exploration programs under serious budget constraints, that may have serious consequences for our attempts at asserting leadership in these areas. Lastly, the interplay between civil and military space activities is the subject of continuing public and Congressional controversy, which precludes development of military space mission capabilities otherwise made possible by the advances in technology.

C. CIVILIAN SCIENCE AND TECHNOLOGY

(1) The semiconductor industry has proposed the formation of a joint industry-government Semiconductor Manufacturing Technology Project (SEMATECH). The Defense Department has voiced support for aid to the semiconductor companies, but so far the Administration as a whole has not taken a position on possible long-term funding of the SEMATECH proposal.

(a) QUESTION What role, if any, is OSTP playing in discussions regarding SEMATECH?

ANSWER (9) Since the beginning of 1987, the Director and the Staff of OSTP have met on several occasions with SEMATECH personnel. In the March/April 1987 timeframe, OSTP took cognizance of the Defense Science Board and other agencies' views regarding the state of the U.S. semiconductor industry. OSTP has concluded that the problem transcends the needs of the Defense Department alone and that it is in fact a national problem. At the request of the Director of OSTP, the White House Science Council appointed a panel under the chairmanship of Dr. Edward E. David to examine the issues affecting the condition of the U.S semiconductor industry. The report of this panel has been brought to the attention of the Economic Policy Council through the Economic Policy Council Working Group on semiconductors. Dr. Graham and other OSTP personnel participated in the efforts of this Working Group.

(b) QUESTION When can Congress expect to see detailed recommendations from the Administration regarding the long-term federal role in SEMATECH, including the possible role of civilian agencies such the Department of Commerce and the National Science Foundation?

ANSWER (10) The recommendations of the Working Group were presented to the Economic Policy Council for its consideration during the second week in October 1987. We expect that the EPC report will be available very soon, probably in a matter of weeks.

(2) QUESTION One question before Congress is whether to start a new National Science Foundation program to support renovations of university research facilities. What is your personal view of this question? Do you support such a program? If so, what level of spending do you recommend for a facilities program, and how do you believe any such program should be organized?

ANSWER (11) I believe that the National Science Foundation should primarily focus on its true role, which is the fostering of basic sciences. In this role, it would certainly be called upon to state its views in regard to specific major projects having to do with science, e.g., observatories, particle accelerators, where the nature, the cost, and the timing of the facilities are primary considerations. It would also be part of the decision process affecting the award of federal funds to scientific research projects that would require, as a matter of course, the upgrading of specific facilities.

There seems to be little merit in efforts aimed at upgrading university research facilities across the board, unless the nature, the urgency and the priorities are clearly and impartially assessed. In general there would be insufficient funding for the project as a whole and university establishments might well request funding to make sure that they have a fair share of the total available funding with little regard of the actual needs or priorities.

I do not believe that the National Science Foundation has the proper administrative support to manage a program of such magnitude. This, of course can be changed, but would detract from the other important missions of the NSF.

What I would hope for is a dual approach. Let the National Science Foundation provide grants by relatively large chunks, grouping several projects around a program cluster involving specifically defined facility development among the project objectives. Then provide the appropriate funding for the science research projects to be the principal users of this facility including construction, equipment, operation, maintenance and upgrading of the facility, together with generous depreciation rules.

As an addition I would suggest the consideration of projects whose mission would be to define and implement the construction of large special purpose facilities to be shared by several research projects and/or institutions. They should be considered on par with other research proposals; NSF could be the logical management focus, provided projects in this category be essentially aimed the advancement of basic sciences.

(3) QUESTION Congress has shown great interest in the problems caused by man-induced changes in the global environment. What role are OSTP and you personally playing in federal efforts to improve our scientific understanding of these changes and to persuade other nations to reduce pollutants which harm the atmosphere?

ANSWER (12) The OSTP has recently formed a Committee on Earth Sciences under the umbrella of the Federal Coordinating Committee on Science, Engineering and Technology (FCCSET). The Committee on Earth Sciences is comprised of representatives of agencies with responsibility for programs in global environmental change (e.g., NASA, NSF, NOAA, USGS, EPA). The Committee should be able to coordinate the roles and responsibilities of these various agencies to provide effective Federal research programs in the general area of global environmental change. In general the OSTP takes early cognizance of newly discussed constituents in the

atmosphere. These include gases such as carbon dioxide resulting from metabolic and industrial combustion processes, natural or artificially produced pollutants such as methane and chlorofluorocarbons or again sulfur dioxide, as well as particulates of many kinds. Possible undesirable effects include climate changes, biological impacts, and changes in the chemical composition of the atmosphere, such as depletion of the ozone layer. Scientific evidence as to what the constituents are, what their respective prevalence could be over the natural background, what are the causes or sources, what are the potential impacts in the near or longer term, how to deal with the situation, what technical or regulatory options are available; all these are questions where a large number of diverse opinions are voiced and where objective scientific advice should be welcome, but is not often available. It is the exception rather than the rule that a clear consensus emerges on any important issue.

The OSTP's role is to validate the input sources, review the FCCSET reports, assess the quality and the pertinence of prediction models, develop the concepts and the implementation options for possible remedial actions, and more generally, advise the federal and state agencies and other interested parties in regard to issues associated with related policy formulation. In several recent instances, such as the effects of CFCs on the ozone layer depletion, and the related international regulatory proposals, OSTP was involved to a substantial degree; I have reviewed the available scientific evidence and helped to define our recommended negotiating position. Other instances at various stages of completion are the accumulation of carbon dioxide, the "acid rain" phenomenon, and the effects of large-scale nuclear explosions on the global climate ("nuclear winter").

(4) QUESTION Under the provisions of the National Science Foundation Authorization Act for Fiscal Year 1987 (P.L. 99-383), the Office of Science and Technology Policy was to deliver a study of supercomputing networking options to Congress no later than August 21, 1987. The staff work for that report was completed well before August, yet the report has not been transmitted and permission to extend the due (date) was not even asked until September 25. If confirmed, what attitude will you take toward statutory requirements? Can you give this Committee your personnel assurances that you will comply with applicable laws?

ANSWER (13) I am committed to satisfy all statutory requirements associated with the functions of Associate Director of OSTP. Should I be confirmed, I will do my utmost to comply with applicable laws. Insofar as within my power, as part of these functions, requested documentation will be delivered within the mutually agreed upon deadlines. To this I'm willing to give my personal assurances to the Committee.

QUESTIONS FROM SENATOR DANFORTH

General Questions

1. QUESTION What areas of science and technology do you think should be priorities for the Office?

ANSWER (25) This is probably the most difficult question I am being called upon to answer because of the scope of the nation's science and technology activities, the importance of the science and technology policies to the future well-being, security, and competitiveness of the nation, and because of the breadth of the President's concerns. We have a good base on the so-called "hard sciences" (physics, mathematics, chemistry) as well as on some of the application-oriented derivatives. These should have high priority, because of their importance for our competitiveness and national security; but on the other hand, except for monitoring, they need relatively little nurturing. There is the immense domain of biosciences, with its intellectual challenges, relevance to medical, environmental, social and security problems: here again the priorities should be high, the field is moving fast and the OSTP should remain essentially involved.

My own favorite has to do with information sciences. It includes the well-known computer sciences, software and communications; but its goal is to understand how the human brain handles information, how human groups handle information, how to develop human-machinery combinations that will jointly process the information flow reaching them with the highest possible efficiency.

Civilian Science and Technology Questions

1(a) QUESTION Last year the White House Science Council released a report entitled "the Panel on Health of U.S. Colleges and Universities." The Panel recommended that a facilities fund be established at the National Science Foundation. Do you concur with the recommendations of the report?

ANSWER (26) Essentially yes, except as regards the facilities funding recommendation. My detailed explanation for this exception is contained in ANSWER (11), Page 5.

(b) QUESTION What do you think should be the essential elements of a facilities program?

ANSWER (27) The following is reproduced from ANSWER 11:

"I believe that the National Science Foundation should primarily focus on its true role, which is the fostering of basic sciences. In this role, it would certainly be called upon to state its views in regard to specific major projects having to do with science, e.g., observatories, particle accelerators and such, where the nature, the cost and the timing of the facilities are primary considerations. It would also be part of the decision process affecting the award of federal funds to scientific research projects that would require, as a matter of course, the upgrading of specific facilities.

There seems to be little merit in efforts aimed at upgrading university research facilities across the board, unless the nature, the urgency and the priorities are clearly and impartially assessed. In general there would be insufficient funding for the project as a whole and university establishments might well request funding claims just to make sure that they have a fair share of the total available funding with little regard of the actual needs or priorities.

I do not believe that the National Science Foundation has the proper administrative support to manage a program of such magnitude. This, of course can be changed, but would detract from the other important missions of the NSF.

What I would hope for is a dual approach. Let the National Science Foundation provide grants by relatively large chunks, grouping several projects around a program cluster involving specifically defined facility development among the project objectives. Then provide the appropriate funding for the science research projects to be the principal users of this facility including construction, equipment, operation, maintenance and upgrading of the facility, together with generous depreciation rules.

As an addition I would suggest the consideration of projects whose mission would be to define and implement the construction of large special purpose facilities to be shared by several research projects and/or institutions. They should be considered on par with other research proposals; NSF could be the logical management focus, provided projects in this category be essentially aimed the advancement of basic sciences."

QUESTION Last year the Senate debated the Congressional earmarking of research funds for specific universities. Proponents claimed that Congress has the right to decide which schools should receive federal funds. Others argued that Congress had no expertise in determining the excellence of the proposed research and therefore persons qualified to determine the value of the proposal should make the decision. What is your view towards the earmarking of university research funds?

ANSWER (28) I have no expertise to answer this specific question, but I would like to convey a general impression. Surely, Congress has the right to decide the allocation of federal funds; the issue is not Congressional rights but the effective use of scarce research funds. I believe that the problem we are trying to solve is the instability of the distribution of research funds: an outstanding and wealthy university will bid high for talent of national stature, so it will attract a disproportionate share of research grants. An institution of relatively recent vintage, or less attractively located, will have difficulty in attracting first rate talent, so its research portfolio will suffer. In this context, and to use a well-known cliche, "the rich get richer and the poor don't have a chance". This is what I mean by instability in this context.

If it be the purpose of Congress to help "underprivileged" universities, instead of earmarking research funds, it could endow "research associate" or "professor's" chairs, for outstanding young research talent taking up residence in these universities. NSF could help in selecting the recipients according to criteria based strictly on creative potential; monitor the resulting influx of new research, and in general, report back to Congress over a period of five years or so. Talent and motivation are the key factors in research success; Congress should provide the motivation for bringing talent into the institutions currently "under-represented"; research awards, success and growing reputation will follow.

3(a) QUESTION This year the White House Science Adviser organized a superconductivity conference for U.S. scientists. What were the main benefits of this conference and do you plan other superconductivity conferences?

ANSWER (29) The main benefits were (1) To bring the currently known facts of high-temperature superconductivity to the attention of the U.S. industrial decision-makers; (2) To cause a constructive public exchange of views between the scientific/technology leaders and those who are being called upon to apply this evolving new knowledge to product and

market developments; (3) To bring home the fact that exploitation of this potential opportunity is an important element of our future competitiveness; (4) To explore the ways the Government can remove the impediments to rapid U.S. progress in this field; to publicize the fact that the Administration, with the support of Congress, is ready to help; (5) To convey the message that with all the Government's willingness, the essential burden for initiative, investment and business strategy development should be shouldered by the U.S. industry.

There are no firm plans for another conference of the same type on superconductivity, although future circumstances may prompt us to reconsider. On the other hand, the success of this conference suggests that it could serve as a model for other areas of scientific or technological endeavors.

(b) QUESTION Do you think the Science Advisor should have conferences for other emerging technologies?

ANSWER (30) In short, yes. We have found that the participation of the potentially interested community was enthusiastic, the information exchange was gratifying, and that many have expressed the thought that we should do more of this type of "science and technology town meetings". Even in an age of instant broad-band communications, there seems to be no real substitute for face-to-face contact between human beings.

We are not yet formally committed to any, but we are thinking of a conference on space sciences (emphasis on the impact on human societies), biomedical instrumentation (emphasis on improvement of the benefit/cost ratio in health care delivery and health maintenance). Others may follow, as our resources permit.

(c) QUESTION What actions should the federal agencies take to be in a position to use the breakthroughs in superconductivity?

ANSWER (31) Assuming that the question is aimed at U.S. industry as well as Government use of superconductivity, these actions have been explained in some detail in previous testimony before this Committee and elsewhere. The brief summary is as follows:

1. Remove, insofar as possible, current regulatory or fiscal barriers to rapid advance; increase protection of intellectual property

2. Facilitate information exchange between universities, federal research centers, and industry

3. Ensure that the principles of fair trade and reciprocity are defined and are being effectively applied between the U.S. and its trading partners

Note that while these are relevant to superconductivity-related activities, they apply to the U.S. industrial R & D as well.

QUESTIONS FROM SENATOR PRESSLER

General Questions

1(A) QUESTION How does the broad mandate of the Office of Science and Technology [Policy] affect its ability to focus on single issues?

ANSWER (32) We do have the standard problem of breadth vs. depth. It does not appear to offer insuperable difficulties in view of two specific characteristics of the Office:

a. We select our professional staff to have complementary specialities (physicists, engineers, bioscientists, economists etc.) and at the same time the broad background and experience that allows rapid familiarization with any special topic that may not be within our collective experience;

b. We have on call the expertise of a wide body of consultants, the advice of the White House Science Council; we also call on ad hoc study committees to address broader areas that deserve an in-depth look. We have found the cooperation of Government agencies in this respect outstanding.

(B) QUESTION Should Congress mandate specific issues for the Office to examine in order to increase its effectiveness?

ANSWER (33) We would obviously respond promptly to Congressional mandates of this type. There is a danger, though: if, each time a Congressional Committee faces what is construed to be a science and technology-related issue, a mandate is sent forth to the OSTP, very soon the many mandates of this type would create a problem of priorities.

I respectfully submit that a more effective way of proceeding would be close and timely consultation between the Congressional Staffs and the Office; the joint definition of the issue(s) and an agreement on timetables. Understandings of this type (as distinguished from mandates) often reduce the workload, allow correlation between apparently disparate areas, take advantage of synergism and perspective; all to the benefit of the work of Congress.

Civilian Science and Technology Questions

1. QUESTION A general concern exists that American industry is losing its ability to compete in world markets. Should the federal government take action to help make American industry more competitive? For instance, should the federal government fund industry research or cooperative ventures? Could you comment on the Defense Department request of $50 Million for a semiconductor research consortium?

   ANSWER (34) My answer is in several parts.

   Yes, the Federal Government should do its utmost to help U.S. industry to become and to remain competitive. Steps in this direction should include the elimination of legislative, regulatory, fiscal and anti-trust type barriers; the Government should also see to it in its trade negotiations that our industry has a fair opportunity to compete against its increasingly aggressive foreign counterparts.

   No; inasmuch as possible, the Government should refrain from direct subsidy to any industry or group; neither should it shoulder the burden for strategy development and risk assurance. This is what private enterprise is about; this is why the rewards of successfully business enterprise are so large. On the other hand, if a corporation or a consortium can bona fide deliver a product or a service (under fairly established and applied procurement practices) that is of unique value to the Government, there should be no objection for the Government to contract and pay for such products or services.

   The DOD's $50 million request for the semiconductor consortium should be seen in this light. If the aforesaid consortium delivers a product or service (e.g., prototypes of advanced semiconductor manufacturing equipment and processes) for a "quantum meruit" payment, I would strongly support the request. If it is to help industry to do its own planning and strategizing in order to remain competitive, I would recommend against the request on the grounds that it would encourage the perpetuation of the very same circumstances which placed the industry in its present predicament.

2(A) QUESTION Is the funding of research and development too heavily concentrated within the Defense Department?

ANSWER (35) No. The national government alone is entrusted with the constitutional responsibility to provide for the common defense; a prudent level of defense R & D is an essential part of meeting this responsibility. The military R & D should be judged in terms of its effectiveness (for future military purposes) and also in terms of its transfusion to the civil sector. Except for specific weapon research the record of this transfusion is excellent. In point of fact, I consider the relatively free flow of basic and advanced research results between the military and the civil sectors of the U.S. and vice versa as one of the greatest national security assets of this Nation.

(B) QUESTION Should the Department of Defense fund civilian research and development? In which instances should the Defense Department not fund civilian research?

ANSWER (36) The Department of Defense should continue to fund its own, broadly interpreted research and development needs. In basic research the distinction between military and civil R & D is blurred. Thus, very often, the DOD would be in position to support endeavors which, eventually, will pay large "civil" dividends.

DOD should not support civilian research when (1) that research does not fall within the DOD statutory mandate; (2) such support would distort the civilian markets by creating unfair advantage to a selected group of private enterprises; (3) when the state of maturity of the research warrants private investment. Let us not forget that the Defense Department research funds are severely constrained by its own overall budget ceilings and that there are other appropriate sources to support civilian research that is non-defense-related.

MINORITY QUESTIONS

U.S. Space Program

1. You were part of the delegation representing the U.S. recently in Moscow at the Space Future Forum, which was sponsored by the Soviet Institute for Space Research. One of the major themes of this forum, according to news reports, was cooperation in space.

QUESTION What do you consider to be the most realistic opportunities for space cooperation between the U.S. and the Soviet Union?

ANSWER (14) (Please also refer to my answers numbered (4), (5), (6) and (7) above) I believe that the most promising area of scientific cooperation with the Soviet Union in the near term future would be the exchange of scientific information. This could cover both theoretical matters and data from instruments sensing solar, lunar, planetary and deep space (galactic and and extragalactic) phenomena. We should be quite interested in Soviet biomedical data on human endurance in space. I believe that joint major undertakings for instrumented explorations of planets or exchange of astronauts and cosmonauts are for the longer term; and as to joint manned lunar or planetary missions, that would be for the much longer term future, subject to the conditions offered in my answers referred to above.

QUESTION What are the advantages and disadvantages of entering into significant cooperative space ventures with the Soviet Union -- what does the U.S. have the most to lose and gain from space cooperation with the Soviet Union?

ANSWER (15) The advantages of cooperation are the acquisition of information that would not be forthcoming from United States unilateral activities, especially while the United States is being slowed down and (assuming that) the Soviet program keeps on progressing at the currently planned optimistic pace. Eventually, if we can establish a measure of complementarity between the respective space activities, then there could be advantage to exchanging the acquired information. The risks are the ever-present possibility of contributing to the growth of Soviet military potential by inadvertent technology transfer and the probability that the Soviet Union would use such joint missions to reinforce their claim to Soviet leadership in space. Unless balanced by a strong, independent U.S. space science program, such claims could serve to weaken the cohesion of the Western alliances and to reinforce the commercial penetration of the Soviet Union into Western space launch services markets.

QUESTION How do we address technology transfer concerns as they might relate to cooperative space ventures with the Soviet Union?

ANSWER (16) Cooperative space ventures do have risks associated with technology transfer and these risks are assessed, as are other technology transfer issues, through interagency review. In general, the interagency group examines the issues submitted from two viewpoints: (a) Is the technology content of the possible transfer contributive to general or specific military capability of the Soviet Union? (b) Is the technology in question (including possible embodiments into devices and systems with opportunity for direct use or "reverse engineering") available to the Soviet Union from sources not subjected to U.S. controls?

Based on the interagency review findings, the NSC, with the advice of OSTP, prepares recommendations for the President's decision on the specific transaction involved.

2. A manned mission to Mars has been popularly discussed as a potential cooperative space venture with the Soviet Union.

QUESTION How feasible is such a mission, and what would be the major technological and geopolitical considerations related to such a mission?

ANSWER (17) The answer to this question is essentially that given above, under (7); repeated here for convenience:

> "At this point, the large-scale Mars missions (i.e., those calling for massive automated equipment and/or human exploration) are still in the stage of long range planning for both the Soviet Union and the United States. While the Soviet Union is publicly declaring its intent and publicizing its plans, there appears to be no firm programmatic commitment at this time. The chances for a joint U.S. - Soviet Mars missions would be increased if the U. S. decides to commit to a Mars manned mission and if the relations between the two countries remain stable and cooperative in critical areas other than space endeavors over a period exceeding 10 years."
>
> "In making this statement, I assume that the U. S. will have recovered its (diversified) space launch capability and be in the process of implementing a vigorous space science and exploration program on its own. (The cooperative Mars venture should be seen as only one of the many space undertakings, rather than the vital centerpiece of the U.S. space program.)"
>
> "I also assume that there will be a tangible advantage for the U.S. scientific goals in space resulting from the cooperation."

Beyond these "geopolitical" considerations, the technical and programmatic hurdles must be realistically taken into account. Both sides must have reliable, redundant and highly capable space launch and transportation systems at unit costs that are affordable. Let us not forget that mission costs in this perspective are measured in visible fractions of GNP and that ample backup and safety features must be provided. These are not missions to be budgeted on a shoestring; failure can simply not be tolerated. All Soviet claims notwithstanding, neither side has at present the required space transportation capability.

In all likelihood, in-orbit assembly and manned operations capability will be needed. It will have to be demonstrated and exercised over significant time periods. Provisions would have to be implemented to ensure that the Soviets do not use such exercises to develop military observation and/or operations capabilities. Lastly, both sides will have to learn how to live, operate and stay healthy in the space environment for periods measured in years.

3. Since the accident of the Shuttle Challenger, there has been considerable concern about the state of our civil space program. Many have suggested that the U.S. has either no space policy or that it is inadequate. Yet, I now understand that OSTP and the National Security Council are conducting a review of our present space policies.

QUESTION How would you describe our present space policy, and to what purpose is this review being conducted?

ANSWER (18) Our current national space policy is embodied in NSDD -42, complemented by NSDD-144 and several other modifying directives. It essentially reflects the 1980-1982 thinking, but needs to be revised in the light of (1) the clearly growing competition by the Soviet Union and, increasingly, from other nations; (2) the changes in our perceptions as to the national security concerns associated with the use of space; (3) the weaknesses in our assured access to space, that have become apparent as a consequence of the 1986 Challenger and TITAN accidents; and (4) the increased potential for commercial exploitation of space activities.

The current review of our national space policy is aimed at consolidating the many directives now extant into a single document, and at the same time at bringing the policy into consonance with our national goals, perceptions, and resource projections.

QUESTION What can Congress expect as a result of this review?

ANSWER (19) A revised national space policy, together with guidelines and implementation directives will be published. As attachments, the Administration will present its assessment of our current and projected space postures in the military, civil and commercial sectors. This will be reflected in the appropriate budget requests submitted to Congress. I am convinced that Congress will have ample opportunity to assess the conclusions and to be consulted in the final phases of policy formulation.

4. As you know, the task force that NASA Administrator Jim Fletcher charged with defining potential U.S. space leadership initiatives recently released its report. This task force concluded that "the United States has clearly lost leadership in the areas of Mars exploration and manned space operations in low-Earth rbit and is in danger of being surpassed in many others during the next several years".

QUESTION What are your own thoughts on this conclusion, and if you concur with this conclusion, what are we doing, or what should we be doing to turn around this situation?

ANSWER (20) I substantially agree with the thrust of the conclusions, although there have been instances (e.g., the SATURN V launch vehicle or the SKYLAB mission) where our demonstrated capabilities substantially exceeded those now achieved by the Soviet Union. Our current lag with respect to the Soviet programs is not a matter of technical inferiority but stems from a launcher inventory that reflects a lack of willingness to invest in keeping with a broad, sustained strategic plan, aimed at clearly defined long-term objectives. I believe that once our true objectives are defined and Congress endorses them, we will have no difficulty in meeting any challenge by any group of nations. At the present time, we are doing what I believe is the right thing:

(1) Developing a revised National Space Policy that will clearly relate our civil and military space goals to the proposed resources and implementation strategies;

(2) Making sure that these space goals support in toto the national goal of space leadership;

(3) Putting into place management and technical development teams that will deliver results in keeping with pre-approved schedules and risk assessments.

I also believe that commitment to large-scale manned missions should await the development and the deployment of a sound space infrastructure, including transportation, utilities, safety, search and rescue; plus the preparation of ample technology base, covering the most probable set of mission requirements.

Once the nation, with the joint leadership of the Administration and Congress, is clearly willing to underwrite the broad concept of space leadership, we will have no dearth of specific project proposals.

5. QUESTION How do you define "space leadership" and what can and should we do to ensure that we attain and maintain "space leadership"?

ANSWER (21) Let me give you my own personal definition.

First, we must define ambitious goals, associated with each of the Government and private space activity sectors. Ambitious in this context means imaginative, and bordering at the limits of the projected state-of-the-art in the next 10 to 50 years.

Second, we must define a timetable, accounting for the projected evolution of our capability, the national resources made available, and the activities of our competitors. We do not have to be first or biggest in every single instance, but that choice should be ours, not that of our competitors.

Third, we should be in a position that would make our goals and timetables credible. We must be perceived by the world as (1) being able to develop and deploy systems that will perform our proposed space missions; (2) being able to cooperate with our Allies in achieving their space goals, when these are in consonance with our interests; (3) having the capability to discourage, deter, or to preclude space activities contrary to U.S. interests; and (4) deriving a preponderant share of economic benefits from global space activities, in keeping with our intellectual and material investments.

QUESTION Do you believe that the U.S. can and should be the leader in all space activities, or is that even a realistic goal, now that the space programs of other nations are expanding and becoming more mature?

ANSWER (22) The ANSWER (21) above essentially covers this matter. I believe we should lead in areas of our own choice, rather than being forced into positions of inferiority by the choices of others. With this proviso, overall space leadership is a realistic goal; it has obvious prestige and political value and I would like to be placed emphatically on record as wanting international leadership in space to be one of our high-priority national goals.

QUESTION What do you believe to be the strengths and weaknesses of our civil space program?

ANSWER (23) The strengths are the remarkably able and competent technical people and the unique research experience base. The weaknesses are (in my judgement): (1) imbalance between large engineering-heavy projects (e.g., shuttle, space station) and truly scientific undertakings; (2) insufficient emphasis on aeronautical research (as contrasted to space-related research); (3) management practices, cost control, selection, motivation and retention of outstanding scientific talent; (4) relationships with the scientific community not directly involved in space projects; (5) failure in commercialization efforts as prescribed by current space policy and (6) insufficient attention paid to technology transfer control problems.

6. The report of the task force that was asked to identify potential space leadership initiatives listed four such missions: (1) Mission to Planet Earth, which would attempt to develop a fundamental understanding of the Earth, and of the consequences of changes to that system, (2) Exploration of the Solar System, (3) Outpost on the Moon, and (4) Humans to Mars.

QUESTION Which of these four missions do you believe will do the most to establish U.S. leadership in space, and why?

ANSWER (24) Here again, I am voicing my own opinions, not results of analysis. I also find it difficult to answer in absolute terms without risking to alienate at least some of those who would disagree with my views. I would place Mission to Planet Earth first; we can do it within the current resource envelope and technology projections; it is apt to yield true, tangible benefits. Exploration of the Solar System should be next; we have the talents and the technology base and we will soon have the launch capability to launch instrumented missions. Scientific results would complement those forthcoming from the Planet Earth project.

I can see the Moon outpost as part of our space posture for the mid-to-late 1990s; I do not believe that manned missions to Mars should be contemplated before 2005 or so. In my judgment, I rather see an orbital work station, complementing the currently proposed space station, where humans would learn to live, work, assemble other space structures, before we undertake the faraway manned exploration of lunar or planetary surfaces.

FRANCIS J. IVANCIE, TO BE A COMMISSIONER, FEDERAL MARITIME COMMISSION, AND DR. FRANCIS H. FAY AND DR. WILLIAM W. FOX, JR., TO BE MEMBERS, MARINE MAMMAL COMMISSION

WEDNESDAY, OCTOBER 28, 1987

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The committee met, pursuant to notice, at 2:03 p.m., in room SR-253, Russell Senate Office Building, Hon. John B. Breaux presiding.

Staff members assigned to this hearing: Barry Kalinsky and John Hardy, staff counsels; Penny Dalton, professional staff member; and Ruth Johnson, minority professional staff member.

OPENING STATEMENT BY SENATOR BREAUX

Senator BREAUX. The committee will please come to order.

This afternoon, the Committee will consider the re-nomination of Francis J. Ivancie to the Federal Maritime Commission. These are especially challenging times for the Commission.

I understand the FMC will soon enter the modern age of technology and adopt a long overdue automated tariff filing system. Since its inception, the FMC has manually filed thousands of tariffs into approximately 4,980 four-ring binders where they are virtually non-discoverable. I was pleased to learn the full implementation of the new automated operation is anticipated to begin in the summer of 1989. This advanced computer system will not only benefit private parties ability to rapidly file, retrieve, and evaluate tariff information, but also enhance the FMC's ability to analyze tariff data and enforce shipping statutes.

The FMC also administers the provisions of the Shipping Act of 1984, and in the process must decide difficult issues regarding service contracts and independent action. A potential threat to our tariff filing system may lie in the direction which service contracts have taken. Service contracts should enable shippers to commit their cargo with the assurance of adequate service and a predictable price. Carriers, meanwhile, should be able to plan efficient productive service by availing themselves of an assured stream of revenue of future expansion. While precise statistics have eluded the FMC to date, it appears that in many of the trades a very large percentage of the tonnage moves under service contracts. If this is so, and if the reasons for it are the assurance of adequate service

and a predictable price for shippers; and an assured stream of revenue for carriers—then that is one thing. But, if their popularity is explained by the current overtonnaged environment, and the ability of shippers to negotiate service contracts which may not be service contracts at all, but simply rate cutting devices—then I believe there is a real threat to our system of tariff filing. The FMC currently has pending a petition for rulemaking which, I believe, raises these issues, and hopefully the Commission will act on this matter shortly.

The integrity of our tariff filing requirement is also being threatened by one of the most pernicious practices in our liner trade—the secret departure from published tariffs, also known as illegal rebating. This unlawful practice gives an "edge" to an offending carrier where none should exists; and it discriminates among shippers. Sooner or later the result is chaos.

Within the past four weeks, the FMC announced a settlement with carriers in the North Atlantic Trade under an amnesty program directed at illegal rebating. And this past Monday the FMC announced it may offer trans-Pacific ship lines the same type of amnesty program. In my view, everyone—shipper and carrier—should help the FMC eradicate this cancer.

Clearly, this is a challenging and exciting time at the Commission. I am sure you will find this committee most supportive of your efforts at the FMC and receptive to any suggestion you may have to improve its effectiveness.

Also appearing before us today are William W. Fox, Jr., and Francis H. Fay, nominees to the Marine Mammal Commission. It is certainly a pleasure to welcome you both. I would have to say that rarely is it my pleasure to have nominees before the Senate for positions of importance that have such distinguished careers and such a depth of expertise and knowledge in the field to which the Marine Mammal Commission applies. Both of the candidates have extensive backgrounds in marine population dynamics, the science that supports informed resource management decisions.

I have an opening statement that Senator Hollings would like to have included in the record.

[The statement follows:]

OPENING STATEMENT BY THE CHAIRMAN

Today, the Committee on Commerce, Science, and Transportation is considering three nominations which have been submitted to the Senate by President Reagan. The first is that of Francis J. Ivancie to the Federal Maritime Commission, and the others are Drs. Francis H. Fay and William W. Fox to the Marine Mammal Commission. I wish to welcome Commissioner Ivancie and congratulate him on completing his first term of service at the FMC.

The Federal Maritime Commission is an independent agency which regulates our domestic and foreign ocean liner commerce. Our regulatory policy is intended to safeguard against agreements and practices in the U.S. liner trades which would be detrimental to the commercial interests of the United States. Thus, the Commission strives to ensure that all carriers operating in the foreign commerce of the United States, whether U.S.-flag or foreign, whether conference members or independents, compete openly and fairly with one another.

The FMC is vested with the tremendous responsibility of administering the Shipping Act of 1984, the first major revision of the Shipping Act in nearly 70 years. The declaration of policy in the 1984 act states that the purpose of the act is to "establish a non-discriminatory regulatory process for the common carriage of goods by water in the commerce of the United States." Additionally section 18 requires the

FMC to undertake a five year assessment of the act's impact on international liner shipping, and then make a report to an Advisory Commission on conferences in ocean shipping, which will be established in later 1989. Meanwhile, however, life under the Shipping Act goes on and the FMC has to administer and enforce its provisions.

The Marine Mannal Commission is also at an important juncture with respect to its statutory authority. Fifteen years have passed since the establishment of the Commission by the Marine Mammal Protection Act of 1972. In the intervening years, we have reauthorized the MMPA several times, modifying its provisions to develop a balanced and comprehensive federal program for marine mammal conservation and management. This year as part of the reauthorization process, Congress will once again reevaluate the effectiveness of the MMPA. And once again, we will look to the expertise of the Commission to review existing programs and suggest changes. The nominees before us appear exceptionally well-qualified to make those suggestions. Both have impressive academic and professional backgrounds. Together they combine over 50 years experience in studying the marine environment. Gentlemen, I welcome each of you here today and look forward to working with you in the coming months.

Senator BREAUX. We are, indeed, honored to have recommended to the committee for re-nomination of Frank Ivancie our two distinguished Senators from the State of Oregon. Knowing their schedule, I would be happy to hear their remarks and recommendations before we proceed with the nominee. Senators? Who is the senior Senator?

Senator PACKWOOD. Senator Hatfield is.

Senator BREAUX. Bob?

Senator HATFIELD. Senator Packwood, this is your committee of which you have been a great leader. I would be very happy to defer to you on opening the hearing, and I would be happy to follow.

Senator PACKWOOD. I will be happy to accept I don't want to distort any precedent, however, as to undermining the seniority system which I have great regard for.

OPENING STATEMENT BY SENATOR PACKWOOD

Senator PACKWOOD. Mr. Chairman, I'm delighted to be here today to urge the reconfirmation of Frank Ivancie to the Federal Maritime Commission. He was, of course, appointed and confirmed two years ago.

I have personally known Frank Ivancie for at least 20 years. It may be longer, but at least 20 years. I knew him when he was on the city council in Portland. I knew him when he was mayor of Portland, have known him as a very successful traveler especially to the Orient in seeking business for Portland. He is very knowledgeable in port matters because in addition to being mayor, the port of Portland is one of the significant ports on the Pacific Coast. And the mayor is intimately involved with all of the port activities, although the governing body is technically not the city of Portland.

I don't need to tell you the record that he has made in the last two years while on the Commission. It has been exemplary.

Frank Ivancie is just the right man for this job. His philosophy on ocean shipping is right on the mark. He works to ensure that U.S. carriers can compete on a "level playing field", and when he identifies a problem, he supports taking vigorous action. I certainly support his efforts to ensure fair practices in ocean shipping.

Frank Ivancie has contributed to the successful team effort of the FMC, and it is my pleasure to support this reappointment.

In addition, Mr. Chairman, I know some of his family—not all of his family—well, but I was privileged to have his son as one of my interns this summer, and I can assure you that the son is as good as the father. So, I am delighted to join with Senator Hatfield in urging a swift reconfirmation of Commissioner Ivancie.

Senator BREAUX. Does his son join you in that recommendation?

Senator PACKWOOD. He went to Georgetown also, and I asked Commissioner Ivancie if his son lived at home all summer, and he said all children don't like to live at home all of the time. I don't know if that's a recommendation or not.

Senator BREAUX. It's consistent.

Mark Hatfield? Senator Hatfield, pleased to have you here.

STATEMENT OF HON. MARK O. HATFIELD, U.S. SENATOR FROM OREGON

Senator HATFIELD. Thank you, Mr. Chairman. I appreciate the opportunity to come before your subcommittee to join with my colleague, Senator Packwood, in recommending the affirmative action on the reappointment of Commissioner Ivancie.

Senator Packwood has indicated his length of knowledge and a friendship that goes back some 20 years, and just about the age difference between Senator Packwood and me, we would add that to the knowledge and my friendship going back more than 30 years with Commissioner Ivancie.

Frank Ivancie in effect grew up in city government as an executive assistant to a long-time popular mayor by the name of Terry Shrunk. And our careers paralleled in one sense in that I was serving in the State legislature, and then secretary of state, and then governor, while Commissioner Ivancie was moving up through the chairs to become a member of the city commission of Portland. (Mr. Chairman, we are one of the only cities left with that archaic form of government known as commission form. Commissioner Ivancie and I will not engage now upon a debate as to whether it's a good system or not.) He served in that role for three full terms, I believe, before becoming mayor and all of this time with a great tutor like Terry Shrunk.

Portland has had a strong emphasis in developing trade and maritime relations with the Pacific rim countries. Through many contacts, cultural, economic, political, Frank Ivancie developed the reputation for Portland as being foremost in its trade relationships with Japan, Korea, Taiwan, the Philippines and opening into trade with mainland China. Portland is the largest dry cargo port on the west coast. It's the largest port of embarkation of Japanese automobiles and many other factors that have really been developed as a tribute to the leadership of Mayor Ivancie and Commissioner Ivancie.

President Reagan nominated Frank Ivancie to serve as a Democratic member of the Federal Maritime Commission in 1985. In his first two years as a member of the FMC, Frank has continued to show his understanding maritime and trade issues and has been an active participant in Commission decision. Drawing on his vast experience in city government, Commissioner Ivancie personally un-

dertook a detailed review of the Commission's budget process to determine its adequacy and effectiveness.

Mr. Chairman and Members of the Committee, as an advocate of increased trade opportunities for American companies, I am pleased that the Federal Maritime Commission is seeking ways to streamline the regulation of the maritime industry and enhance the nation's competitiveness. I know that Frank Ivancie will continue to serve the nation in this vain and I am pleased to announce my strong support for his reappointment to the Federal Maritime Commission.

I could go on and give you a long list of specific honors and tributes that have been made to Frank Ivancie through his long public service, but I would merely say I strongly recommend him. You have two Republicans recommending a Democrat, and that in itself should be great testimony to the fact that we have great pride in being here to recommend the reconfirmation of Frank Ivancie.

Senator BREAUX. Well, the committee thanks both of the State's Senators for being able to join together in making this recommendation. It obviously adds a great deal of credibility to Frank Ivancie's ability to work with the Congress, and the support that you all have expressed is very important. We appreciate it very much.

Mr. Ivancie, you have some comments that you would like to make, and we will let the two Senators take leave. Thank you, gentlemen.

Frank, we are obviously glad to have you back. Do you have any comments you would like to make?

[The biographical sketch follows:]

BIOGRAPHICAL SKETCH OF FRANCIS J. IVANICIE, MEMBER, FEDERAL MARITIME COMMISSION

Synopsis: Appointed to Federal Maritime Commission November 1985. President of Frank Ivancie & Associates, 1984–1985. Mayor of Portland, Oregon, 1980–1984. Portland City Commissioner, 1966–1980. Executive Assistant to Portland Mayor Terry Schrunk, 1957–1966.

As Mayor, Frank Ivancie made economic developemnt and job creation the priority of his administration. The trade missions that he led to Alaska, Europe and Japan resulted in the attraction of new development dollars and new jobs for the Portland area.

Mr. Ivancie began his career in public service with the City of Portland in 1957 when he was named Executive Assistant to former Mayor Terry Schrunk, a position that he held for ten years. Mr. Ivancie was first elected to the City Council as a Commissioner in 1966 and was re-elected to the position in 1970, 1974 and 1978. During his service on the City Council, Mr. Ivancie was Commissioner in charge of every major city bureau. He won the May, 1980 primary election for Mayor and assumed office officially in November, 1980.

Among Mr. Ivancie's accomplishments as Mayor were the city's first reduced General Fund budget in thirty years; a streamlining of city bureaus and service delivery; initiation of the construction of the award-winning Portland Building; refurbishment of Portland's Civic Stadium; the building of a successful hydroelectric project at Bull Run; the development of a self-sufficient emergency groundwater source for the city; the nurturing of downtown developments that kept the city growing and provided many construction jobs; the implementation of an effective crimefighting plan; increased efficiency of city progress in housing improvements and urban renewal; and the creation of a new high-technology training and research center for Portland State University to help attract more high-tech industries to the Portland area.

Numerous Portland-area business people reported dividends from city economic development efforts during Mayor Ivancie's tenure in office in the form of contracts and new contracts that were not available before in the field of world trade. An outgrowth of those efforts was the formation of the "Ambassador Program," which re-

cruited traveling executives to make trade calls abroad on the city's behalf. The Ambassador Program became a model for other cities, and is typical of the partnership between the public and private sectors that Mr. Invancie's economic development initiatives promoted.

Mr. Ivancie completed his term as Mayor in December 1984, and from 1984–1985 was President of Frank Ivancie & Associates, an international marketing and consulting firm in Portland. In August 1985 he was nominated by President Reagan to the Federal Maritime Commission, and was confirmed by the U.S. Senate as a member in November 1985.

Mr. Ivancie received his Bachelor of Arts degree in Sociology from the University of Minnesota and his Master of Arts in Ecucation from the University of Oregon.

STATEMENT OF FRANCIS J. IVANCIE, COMMISSIONER, FEDERAL MARITIME COMMISSION

Mr. IVANCIE. Thank you, Mr. Chairman.

First of all, I welcome the opportunity to appear before you this afternoon and am honored that I have been serving as a Federal Maritime Commissioner of this great country, The United States of America. I have had a wonderful two years. It has been an exciting two years, and I can tell you, Senator, as far as I'm concerned, I think the FMC is on top of the situation as far as what needs to be done out there in the maritime world.

I might characterize the FMC as a very proactive organization. You know, we hear a lot of talk about rest and recreation, but one of my R&Rs that I like to talk about is reciprocal rights. And right now in the United States I think we are witnessing some discrimination against our American carriers overseas. And I think that it is time that we even more actively pursue leveling that playing field out there.

As you probably notice when you look at trade magazines, you'll see advertisements of foreign carriers bragging about the fact that they have intermodal services across the United States. They have terminals. They have agencies. They have all the privileges anyone else has in this country. Yet, overseas our American carriers are discriminated against. And I think it's important that we level that playing field out and see to it that we are treated fairly throughout the world.

As you probably have heard, the Commission has been very active in pursuing the malpractices in the North Atlantic. Recently a payment was made of $2 million to the Commission with a provision and understanding that the carriers now will have a self-discipline program that we'll monitor.

So, in essence, the FMC is on top of the situation. We have a lot of work to do, but my priority—and I'm sure the FMC's priority—is to get on with more section 15 informational gathering requests and also the use of section 19 as far as discriminatory practices overseas.

[The statement follows:]

STATEMENT OF FRANCIS J. IVANCIE

Thank you, Mr. Chairman. It is a pleasure to appear before you this afternoon. I am pleased to be renominated by the President of the United States to continue serving as a member of the Federal Maritime Commission.

My experience during the past two years as a member of the Federal Maritime Commission has been a meaningful one. The Commission's jurisdiction, which includes our foreign oceanborne trades as well as our domestic offshore trades, encompasses a broad range of regulatory responsibilities and issues that are of vital impor-

tance to our nation. During my tenure as a member of the Commission I participated in all of the Commission's major deliberations. My philosophy as a member of the Commission has always been that the Commission should be proactive rather than reactive. This philosophy is also shared by the other Commissioners with whom I am honored to serve. As a result of this proactive outlook, the Commission has been very aggressive in enforcing the statutes it administers.

One recent example of important Commission action is the September 29, 1987 Trans-Atlantic Trades amnesty agreement. This agreement provides for the payment of $2 million from 13 carriers as well as for the establishment of an effective mechanism to police future actions. During fiscal year 1987, the Commission collected over $3 million in fines and assessments, an amount which includes the $2 million previously mentioned. This is more than 7 and a half times the sums collected in the previous fiscal year. In addition, the Commission has recently issued orders seeking information on shipping practices in Korea, Taiwan, the People's Republic of China and Japan. In the case of Taiwan, on the basis of information received, the Commission found sufficient evidence to warrant the institution of proceedings under Section 19 of the Merchant Marine Act of 1920. Commission action with regard to the other countries is pending. I am very pleased by the Commission's enforcement activity.

I think Chairman Hickey's statement in announcing the North Atlantic agreement best summarizes the Commission's enforcement philosophy: "as it has done in challenging artificial barriers to competition imposed by foreign governments, the Commission will continue to take whatever action is necessary and appropriate to curb trade malpractices so as to ensure an open and level playing field for all participants in U.S. foreign commerce."

My background is particularly appropriate for membership in the Commission. International trade has been a lifelong interest of mine. I believe that international maritime commerce is the bond that makes our international community a reality. Moreover, my background as an elected official include building coordination and cooperation between the public and the private sectors in the international trade arena.

I am firmly committed to a throughtful, conscientious and fair application of the laws that the Commission administers. I approve and support the objectives of the Shipping Act of 1984 of free and fair trade and I am very confident that the Commission will continue to serve the interests of this nation in a fairminded fashion. I also pledge to the Congress my enthusiastic support for and implementation of any new Congressional directives.

Thank you.

Senator BREAUX. Well, thank you, Mr. Ivancie.

The committee has a number of pages of questions that were submitted to you for you to respond to. And the committee has received the responses to those questions which, of course, will also be made part of our hearing record.

I would just like to ask in general, Mr. Ivancie, as you know, the instances of discrimination that are on the books, acts of various parliaments around the world that I think pretty clearly discriminate against trading, and the ability of our Merchant Marine to do unrestricted business in many foreign countries is a very severe problem.

Many people point out that the FMC, which is charged with the duty of investigating these unfair trade practices, has really utilized a section 19 process only one time. And the examples of unfair trade practices abound.

Can you give me some feeling of how you feel with regard to the fact that the problems are many? Section 19 actions are few. And are we going to change in that regard? What's the position of the Commission with regard to how we should proceed with these practices? You are literally talking about hundreds and a list of countries themselves which would have pages of practices on their books that are unfair. And yet, we seem to have not pursued it as aggressively as we should.

Mr. IVANCIE. Well, Senator, I provided the committee with a list of section 19 related actions since 1935. It is true that section 19 has only been exercised once in its ultimate some time ago. But generally speaking, when we approach a section 19 matter—we like to go through the section 15 process first, which is part of the 1984 Act, where we gather information. Sometimes in the gathering process, the situation is corrected. Some of these nations and others—they see to it that we are somewhat serious and they correct the situation.

Now, in some cases we actually start moving into section 19—now currently, for example, on Taiwan. As we all know, there are some big problems over there in Taiwan as far as terminal operations are concerned, equipment leases and so forth. We now have a proposed rule on section 19 in those practices in Taiwan. In the meantime, Japan, Korea, and China are in a section 15 mode right now, in gathering information.

But what I'm saying, in essence, according to our appraisal, all the actions that we have taken on 15 and threatening on 19 have normally corrected a situation that we set out to solve.

But I can say to you, as I said in my opening remarks, I think you are going to see the FMC even more proactive as far as exercising section 19 procedures in the future because of these discriminatory practices. So, the threat is there. Once that threat is laid out by us, either by gathering information or the threat of the actual rule itself, these nations or these practices are usually corrected.

I know that's an observation that has been made, but that's why I wanted you to know that we furnished this information to the committee. But I'm on your wavelength as far as that we have to be more aggressive in this area of discrimination.

Senator BREAUX. Let me ask you. I know you are aware of the fact that we have placed title I of the Merchant Marine reform bill that I and others have introduced into the trade bill where it is now pending. That legislation would give the FMC additional authorities and mandate that actions be taken in areas where unfair merchant marine trade practices are identified.

Can you give me a little expression of how you feel about the provisions that title contains?

Mr. IVANCIE. You're talking about title 46? Your legislation?

Senator BREAUX. That's correct.

Mr. IVANCIE. I am in complete accord with the thrust of what you're trying to do. I think it adds to the tools that we need in our tool chest, so to speak. And I think the approach that you have in the legislation will be complementary and supportive of our actions. So, I welcome that type of legislation.

Senator BREAUX. I thank you for that.

Our distinguished Senator from Alaska, Senator Stevens, is here. Any questions, Ted?

Mr. IVANCIE. Good afternoon.

Senator STEVENS. I'm happy to be here again to see you here before the committee.

Mr. IVANCIE. Thank you, sir.

Senator STEVENS. Thank you for being willing to take another round in the barrel, so to speak.

Mr. IVANCIE. Thank you.

Senator BREAUX. With that, Mr. Ivancie, you have already answered the questions that we have submitted. Like I said, it will be made part of our record. We thank you for being with us today, and look forward to working with you in your new term on the Commission.

Mr. IVANCIE. Thank you very much.

Senator BREAUX. Very good.

[The questions and answers follow:]

QUESTIONS OF THE COMMITTEE AND THE ANSWERS

Question. What do you believe is the proper role of the FMC in regard to fostering a strong U.S.-flag merchant marine as stated in the declaration of policy contained in the 1920 Merchant Marine Act?

Answer. The only provision of the Merchant Marine Act, 1920 that applies to the Federal Maritime Commission is Section 19. The most significant part of this provision is Section 19(1)(b), which authorizes the Commission to take action against "conditions unfavorable to shipping" in our foreign trades. Section 19 can be used to keep trades open by guaranteeing access to cargo and insuring non-discriminatory and reciprocal treatment with respect to the operation of marine terminals and intermodal facilities and equipment. These actions obviously benefit U.S.-flag carriers and, as a result, encourage the development of a "suitable" U.S. merchant marine.

Question. Do you feel the FMC needs additional regulatory authority under the statute it administers to achieve its objectives? If so, what measures would you propose be enacted?

Answer. Once the section 18 review process is completed in a few years, we should all be in a much better position to determine whether any changes are necessary to make the Shipping Act of 1984 more effective. At the present time, I believe that the Commission's responsibilities can be adequately met under existing law and the Commission has not, therefore, recently proposed any new legislation.

I am aware, of course, of provisions in the Senate and House trade bills that would give the Commission additional authority to address foreign maritime practices. To the extent that the conferees arrive at a bill that will make the Commission's task easier and more efficient, I would support it. I would also note that H.R. 1803, which I also support, would improve current law by strengthening the Commission's authority to address conditions unfavorable to shipping in our foreign trades.

Question. The Department of Transportation, Department of State, and the United States Trade Representative's office have all identified discriminatory shipping practices by foreign countries which exist against U.S. shippers. However, in the history of the FMC, there has only been one Section 19 rule.

Answer. While the Commission has found it necessary to issue a final rule only once in a Section 19 proceeding, this is by no means an accurate measure of the effectiveness of Section 19 in ameliorating unfavorable conditions in our foreign commerce. Whenever Section 19 has been invoked, it has achieved a successful result. Restrictive practices in various trades often have been lifted before final Section 19 sanctions have been applied. This indicates one of the primary advantages of the process—it allows governments to make accommodations rather than forcing them into positions where they have no choice but to retaliate. The fact that we have gone to a final rule only once in a Section 19 proceeding is a testimony to its strengths and not its weaknesses. However, the Commission will not hesitate to apply sanctions when necessary.

Question. To what extent is it likely that these practices create conditions which are unfavorable to shipping in our foreign trade?

Answer. It is theoretically possible that some of the "discriminatory shipping practices" identified by these agencies are creating conditions that are unfavorable to shipping. However, the Commission must have more than unsupported allegations before it can initiate a Section 19 proceeding. This is the reason why the Commission uses section 15 of the Shipping Act of 1984—to obtain information sufficient to determine whether to proceed with Section 19. Moreover, once a Section 19 proceeding is initiated, principles of due process require that we offer interested parties some form of hearing and that we find substantial evidence of unfavorable conditions before we impose any sanctions.

It is also possible, of course, that many of these situations do not in fact create "unfavorable" conditions. For instance, facially discriminatory laws may be on the books of a foreign nation, but not be implemented in practice. Further, a restrictive practice may have no real effect in a U.S. trade because the operations of U.S.-flag carriers or other carriers operating in the trade do not engage in the practice which is restricted.

Question. Please comment on whether you believe the FMC is vigorously imposing sanctions against nations that discriminate against U.S.-flag merchant marine vessels.

Answer. The Commission is working vigorously under Section 19 to maintain open trades. If the Commssion finds that unfavorable conditions to shipping in the U.S. trades exists, it will not hesitate to impose sanctions where necessary.

In some cases, however, U.S-flag carriers have requested that, prior to any Commission action, the Commission allow them to attempt to resolve the problems in a trade on their own or through diplomatic negotiations. In certain instances, U.S.-flag carriers fear that the foreign government imposing restrictions will retaliate against them if the Commission moves too quickly to impose sanctions. The Commission takes into consideration these concerns of U.S.-flag carriers and also any ongoing diplomatic efforts, when determining what, if any, Section 19 actions is necessary at a particular time. Our recent actions clearly indicate that we are not reluctant to employ Section 19. Moreover, while we recognize a valid role for diplomatic negotiations in the Section 19 process, we have not and will not permit such negotiations to inhibit Commission actions under Section 19.

Question. On March 31, 1987, the Merchant Marine Subcommittee conducted a hearing on S. 800, the FMC authorization bill. At that hearing, Chairman Hickey testified in regard to several issues currently before the FMC. Specifically:

Please comment on the progress of the establishment of an automated tariff system, which would enhance the FMC's ability to discharge its regulatory and enforcement responsibilities.

Answer. The FMC's schedule calls for the issuance of a Request for Proposals for an automated tariff system in early 1988 and the execution of a contract for the development and operations of a prototype system next summer. The full implementation of the system is anticipated to begin in the summer of 1989. We believe this schedule is realistic, barring unforeseen events, and the FMC intends to adhere to it as closely as possible.

Our approach to tariff automation has been thorough and methodical, to avoid major problems, to obtain valuable input from the regulated industry, and to result in as useful a system as possible.

When fully implemented, I agree with Chairman Hickey that the system will substantially facilitate filing and retrieval of and access to tariff material by the industry, the public, and the Commission itself. This, in turn, will enhance the FMC's ability to detect violations of the Shipping Act and to take appropriate remedial aciton.

Question. Have the difficulties encountered by the FMC in connection with its inquiry into High Cube Container restrictions been resolved?

Answer. The Commission has been examining the effects of Japanese laws restricting the movement of high-cube containers over the roads in Japan in a series of information-seeking orders pursuant to section 15 of the Shipping Act of 1984. These orders have also attempted to secure sufficient information to assess the impact of liberalizing changes made by the Government of Japan following initiation of the Commission's inquiry. The lastest round, the Second Supplemental Section 15 Order, is now producing responses from the carriers in the trade which the Commission's staff must analyze. Our preliminary assessment of the responses to date suggest that substantial progress has been made in reducing the most burdensome aspects of the Japanese rules, but the underlying problem of treating such movements as exceptions rather than normal business may remain. A thorough review and analysis of the recent responses is underway.

Although the six Japanese-flag carriers were directed by their Government not to respond to the Commission's initial information-seeking order, which was served on them in Japan, they have responded promptly to each of the subsequent orders served upon them or their agents in the United States.

Question. What is the posture of the ILA's "50-Mile Rule" in light of the FMC's recent decision?

Answer. The Commission's decision ordered the carriers to remove the "50-Mile Rules" from their tariffs within 90 days, i.e., by November 2, 1987. However, on September 18, the U.S. Court of Appeals for the District of Columbia Circuit issued a

stay of that order pending the Court's review on the Commission's decision. Thus, the Rules will remain in effect until the review proceedings are completed.

Question. What is the status of the pending FMC rulemaking proceeding on service contracts instituted by the International Council of Containership Operators?

Answer. The Commission recently completed two rulemaking proceedings that relate to service contracts. The first, Docket No. 86-6, substantially revised the Commission's existing contract rules in light of the experience which the Commission had gained since the enactment of the 1984 Act. The other, Docket No. 86-29, requires carriers and conferences to maintain adequate service contract records and to make them available within 30 days of a Commission request.

The Commission will now turn its attention to the petition for rulemaking filed by the International Council of Containership Operators which is opposed by a number of parties and raises complex and controversial issues. This matter is tentatively scheduled for Commission action at its meeting of the week of November 18. In this regard, however, I would note that there have been recent indications in the trade press that the types of service contract "abuses" complained of by ICCO have become significantly less prevalent, particularly "most-favored shipper" clauses and "Crazy Eddie" clauses.

Question. Is there an inherent conflict between applying the EC's competition laws to ocean liner shipping and the 1984 Act; and if so, should the conflict be resolved on a case-by-case basis, or addressed on an across-the board basis?

Answer. Since July 1987, the date that the EC regulations applying the competition provisions of the Treaty of Rome to ocean shipping became effective, there have been no conflicts between the application of the EC's rules on competition to ocean shipping and the Shipping Act of 1984. That is not to say that conflicts may not arise in the future. The Commission would endeavor to resolve any conflict that does arise on a case-by-case basis. It should be noted that the EC regulations provide for consultation between the EC and the competent authorities of a third country to reconcile any conflicts which may arise.

Commission staff recently met with representatives of the European Commission's Competition Directorate to gain a better understanding of the manner in which the competition provisions of the Treaty of Rome will be applied to shipping. The Commission plans further exploratory talks with members of the European Commission.

Question. In the likely event that intergovernmental negotiations regarding the EC's rules on competition and the Shipping Act of 1984, take place, do you believe the Department of Justice should be part of the U.S. negotiating team?

Answer. This would depend on the specific issues which are the subject of negotiations. Certainly, to the extent expertise on the nature and application of U.S. antitrust laws is necessary in these negotiations, the Department of Justice should be involved. We understand that DOJ has already been involved in preliminary discussions with EC representatives on the effects of the EC rules.

Question. If carriers are fined for violation of the EC's rules on competition because of their participation in the Eurocorde pricing agreement, would that create the kind of retroactive anti-trust liability for carriers which the 1984 Shipping Act sought to eliminate?

Answer. An action taken by the EC would not directly affect the antitrust immunity afforded under the Shipping Act of 1984 to carrier members of Eurocorde for the collective activities carried out within the scope and terms of their agreement. Thus fines imposed by the EC for violation of EC rules would not create any retroactive liability under U.S. antitrust laws for Eurocorde members.

To the extent that the EC shipping regulations may permit imposition of fines or penalties on a retroactive basis, (see Article 13(3) and Article 19(4) of Council Regulation No. 4056/86), this would appear to be a matter wholly within the province of the EC. It may be noted that unlike U.S. antitrust laws, violations of the EC rules are exclusively civil in nature. The EC shipping regulations state that: "Decisions taken pursuant to paragraphs 1 and 2 [the authorities to impose fines] shall not be of criminal law nature." Article 19(4) of Council Regulation No. 4056/86.

Question. In view of our stated purpose for enacting the Shipping Act, it would appear we are trying to liberalize the regulation of ocean liner shipping, and that the EC has subsequently adopted just the opposite policy. Do you agree?

Answer. It is somewhat ironic that, while the U.S. has moved in the direction of permitting carriers to exercise more commercial freedom by expediting the agreements process and clarifying and expanding their antitrust immunity, the Europeans appear to be heading in the direction of increased regulation of conferences. This is especially interesting in light of the fact that previously, European carriers, and often their governments, complained of unilateral regulation by the U.S. On the other hand, perhaps the Europeans have learned from our experience that the privi-

lege of being immunized from antitrust statutes must be balanced by government oversight of conference activities. It may be that our systems are converging towards a middle ground of reasonable regulation of the activities of conferences.

Question. The FMC collected facts pursuant to Section 15 of the 1920 Merchant Marine Act concerning unfair port and terminal practices occurring in Taiwan. To date, no further action has been taken. Please comment on the status of this investigation.

Answer. On October 7, 1987, the Commission authorized the preparation of a proposed rule, pursuant to Section 19 of the Merchant Marine Act, 1920, based upon the conditions currently existing in Taiwan with respect to ownership and operation of dockside facilities and equipment and container terminals. This decision was made after the Commission analyzed the responses to its earlier orders under Section 15 of the Shipping Act of 1984. Work on the proposed rule is proceeding and may be completed by mid-November. We are informed, however, that talks between the American Institute in Taiwan (including consultants from the Departments of Transportation and State, and the U.S. Trade Representative) and the Coordination Council for North American Affairs have been postponed, to be held possibly in November. The Taiwanese authorities, nevertheless, do appear now to be instituting changes in the practices complained of in conformity with the commitments made in the April 1987 Agreed Minutes of the AIT–CCNAA talks.

Senator BREAUX. We would like to welcome up at this time Mr. Francis Fay and Mr. William Fox, the nominees for Marine Mammal Commission.

I would ask if our nominees have any statements that they would like to make at this time. Dr. Fay, you are sitting first.

Dr. FAY. Excuse me, sir. I was distracted. I'm sorry. I didn't hear what you sald.

Senator BREAUX. I was just saying, Dr. Fox or Dr. Fay, do you have any opening comments that you would like to make?

[The biographical sketch follows:]

Biographical Sketch of

Francis Hollis Fay, Ph.D.

Born: 18 November 1927, Melrose, Massachusetts, U.S.A.--Education: B.S. University of New Hampshire, Durham, 1950 (Agriculture), M.S. University of Massachusetts, Amherst, 1952 (Wildlife Management), Ph.D. University of British Columbia, Vancouver, Canada, 1955 (Zoology)--Member: American Association for the Advancement of Science (Fellow), American Polar Society, American Society of Mammalogists, Arctic Institute of North America (Fellow), Ecological Society of America, Pacific Northwest Bird and Mammal Society, Society for Marine Mammalogy, The Wildlife Society, Wildlife Disease Association--Special Activities: Museum Affiliate, University of Alaska Museum, 1982- ; Member, Panel of Specialists Committee on Marine Mammals, International Union for the Protection of Nature, 1980- ; Member, Science Advisory Committee, Alaska Eskimo Whaling Commission, 1980- ; Member, U.S. Steering-Planning Committee, Marine Mammal Project, US-USSR Environmental Protection Agreement, 1975- ; Member, Committee of Scientific Advisors, U.S. Marine Mammal Commission, 1975-1977; Member, U.S. Delegation Marine Mammal Working Group, US-USSR Environmental Protection Agreement, 1973-74; Member, U.S. Delegation, International Symposium for Bering Sea Study, Hakodate, Japan, 1972; Chairman, Section on Biology, Utilization, and Conservation of Marine Mammals, Alaska Science Conference, 1971; Vice President, Alaska Chapter, The Wildlife Society, 1971; Member, Governor's Ad Hoc Committee on Organic Mercury Poisoning in Alaska, 1970; Member, U.S. International Biological Program, Marine Mammal Council, 1967-73; Member, Marine Mammal Committee, American Society of Mammalogists, 1959-67--Experience: Professor of Marine Science, University of Alaska, 1983- ; Associate Professor of Marine Science and Arctic Biology, University of Alaska, 1974-1983; Adjunct Associate Professor of Wildlife and Fisheries, University of Alaska, 1973-1974; Adjunct Associate Professor of Arctic Biology, University of Alaska, 1970-1972; Public Health Service, Arctic Health Research Center, Research Biologist GS-14, U.S. Department of Health, Education and Welfare, 1967-1974, Medical Biologist GS-11 to 13, U.S.Department of Health, Education and Welfare, 1955-1967; Teaching Fellow, Department of Zoology, University of British Columbia, 1951-1955; and Research Fellow, Massachusetts Cooperative Wildlife Research Unit, University of Massachusetts, 1949-1951--Author or co-author of more than 100 papers, articles, and books.

STATEMENT OF DR. FRANCIS H. FAY

Dr. FAY. Yes. I think it's appropriate. We did prepare an introductory statement.

My name is Francis H. Fay, and I'm a professor of marine science in the University of Alaska's School of Fisheries and Ocean Sciences. I have been engaged in research on marine mammals in Alaska and other parts of the North Pacific region and the Arctic for the past 36 years. I don't claim to be a world expert, but for that reason—for the reason of my long years of experience, I am frequently called on by various State, Federal and International organizations and agencies, including the Marine Mammal Commission, to provide information, advice or criticism on on matters relating to marine mammals.

I was a graduate student at the University of British Columbia when I began my research on Alaskan marine mammals in 1951. This was followed by 19 years as a biologist with the U.S. Public Health Service's Arctic Health Research Center in Anchorage and Fairbanks. In that position I traveled widely and was involved in ecological research on both terrestrial and marine vertebrates.

I joined the faculty of the University of Alaska in 1974 and was a member of the Marine Mammal Commission's Committee of Scientific Advisors for two years in the late 1970s. I resigned from that committee in 1977 In order to devote a greater proportion of my time to teaching and research on marine mammals.

I am, of course, greatly honored to be a nominee for the Marine Mammal Commission. I must admit, however, to being somewhat reluctant to accept that responsibillty. I know it will require me to immerse myself once again in the intense, consuming business of the Commission. Having experienced that before and being rather fully occupied with my own functions at the university, I wasn't looking forward to that I admit.

I assure you, however, that having come this far in the nomination process, I shall neither turn back nor shirk my responsibility. Had I not already committed myself to give a full measure of devotion to the job, I would not be here today.

I look forward to the challenge of fulfilling the objectives of the Marine Mammal Protection Act. I'm aware of the excellent progress that already has been made in that direction. But I also recognize the job is not yet finished. I think I can contribute something useful toward its completion.

If my nomination is confirmed, I propose to continue to serve the University of Alaska on a part-time basis and to continue my current research there. That research is funded primarily through Federal grants and contracts. I already have filed with the Commission a letter of recusal pertaining to potential conflicts of interest between matters of Marine Mammal Commission business and my continuing relationship with the University of Alaska, as well as with the research projects under my supervision. I shall abide strictly by that recusal agreement, and I believe that it will not limit my effectiveness on the Commission.

Senator BREAUX. Thank you, Dr. Fay.

[The biographical sketch follows:]

Biographical Sketch of

William W. Fox, Jr., Ph.D.

Present Position: Professor of Biology & Living Resources and Director, Cooperative Institute for Marine and Atmospheric Studies, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, Florida--Education: B.S. University of Miami - 1967 (Zoology); M.S. University of Miami - 1970 (Marine Science); Ph.D. University of Washington - 1972 (Fisheries Science)--Research Interest: Theory and application of quantitative methodology for investigating the response of natural populations to exploitation--Honors and Awards: Ford Foundation Fellow - 1969-1972; American Institute of Fishery Research Biologists Outstanding Paper Award - 1971; Honorable Mention, NMFS Outstanding Paper Award for the Fishery Bulletin (U.S.) - 1973; NMFS Outstanding Paper Award for the Fishery Bulletin (U.S.) - 1974; Federal Government Superior Performance Award - 1972, 1973, 1974, 1977, 1978; Federal Government Outstanding Performance Rating - 1974-75, 1976-77, 1977-78, 1979-80, 1981-82; Federal Government Senior Executive Service Bonus - 1980, 1982--Other Positions Held: 1978-1982, Director, Southwest Fisheries Center, National Marine Fisheries Service; 1975-1978, Chief, Oceanic Fisheries Resources Division, Southwest Fisheries Center, National Marine Fisheries Service; 1977, Acting Deputy Center Director, Southwest Fisheries Center, National Marine Fisheries Service; 1973-1975, Leader, Stock Assessment and Fishery Evaluation Investigations, Southwest Fisheries Center, National Marine Fisheries Service; 1972-1973, Oceanographer, Fishery-Oceanography Investigations, Southwest Fisheries Center, National Marine Fisheries Service; 1967-1969, Fishery Biologist, Tuna Ecology Program, Southeast Fisheries Center, National Marine Fisheries Service--Professional Affiliations: American Institute of Fishery Research Biologists, American Fisheries Society, Sigma Xi, The Research Society--Member of numerous International, Federal and State scientific and technical committees--Author or co-author of more than 30 scientific/technical reports, papers, etc.

Senator BREAUX. Dr. Fox, do you have any comments?

STATEMENT OF DR. WILLIAM W. FOX, JR.

Dr. Fox. Yes. Thank you, Senator Breaux. It is good to see you again.

Mr. Chairman, Senator Stevens, my name is William W. Fox, Jr. I'm a biologist by training. My field is population dynamics, particularly that of exploited marine animals.

I have been nominated by the President to serve as a member of the U.S. Marine Mammal Commission. I consider this both to be a pleasure and an honor.

I was educated at the University of Miami where I received a bachelors degree in zoology, a masters degree in marine science. While taking my masters degree, I worked part time and during summers full time for the then Bureau of Commercial Fisheries Laboratory in Miami.

Subsequently, I continued my education at the University of Washington in Seattle. I received my doctorate in fishery science.

Following this, I worked for the National Marine Fisheries Service from June 1972 through December 1982. I began first as a tuna biologist working in the La Jolla laboratory in California. I served one year on the International Whaling Commission's Scientific Committee. I was appointed by Dr. Robert White to the NOAA Tuna Porpoise Committee to advise him on the implementation of that aspect of the Marine Mammal Protection Act.

In 1975, a reorganization of the laboratory in La Jolla gave me full marine mammal responsibility predominantly dealing with the so-called tuna-porpoise problem. When I use the word "so-called" I don't mean so-called problem. I mean the tuna-porpoise part of the phrase is the so-called aspect.

I also had responsibility for coastal marine mammal research along California.

We had a number of successes from 1975 through the time I left in 1978. We were able to determine the status of very large number of stocks of oceanic dolphins so that the government and the tuna fishing industry could meet the requirements of the Marine Mammal Protection Act and permits could be issued to continue the existence of that fishery.

We also worked very closely with the tuna fishing industry, the environmental community and the Marine Mammal Commission to get appropriate funding for that program, and as another aspect of that program, to develop gear and procedures that resulted in a tenfold reduction in marine mammal mortality in that fishery.

During this time I also served as scientific adviser to the U.S. delegations to the Inter-American Tropical Tuna Commission, to the International Commission for the Conservation of Atlantic Tunas, and to our negotiators at bilateral negotiations with Central America over tuna issues.

In 1978 I moved to the Southeast Fishery Center of the National Marine Fishery Service as its director and was there for four years. I built in the capability to respond to the Marine Mammal Protection Act and to the edicts of the Magnuson Fishery Conservation and Management Act. That center was not suitably equipped when

those laws came into effect, being a predominantly exploratory fishing, life history and ecologically oriented research program.

In December 1982 I moved to my current position, which is professor of marine science, at the University of Miami. I direct an institute at the Rosensteil School of Marine and Atmospheric Sciences. I teach a graduate level course in fisheries management science. I conduct research on population dynamics techniques for tropical and subtropical species.

I have a number of public service items. I currently serve as a commissioner for the State of Florida Marine Fisheries Commission. That began in August 1983. I served as chairman for this past year, and was reelected again for this next year. And I learned much from the Marine Mammal Protection Act. The tenets of the Marine Mammal Protection Act—many of them are in our State law that implemented the Marine Fisheries Commission. We are making great progress in the recovery of our fisheries in the State of Florida as a result of those very same tenets.

I served until April 1986, beginning in February 1984, as a member of the Committee of Scientific Advisors to the U.S. Marine Mammal Commission. So, I'm quite experienced in the field of marine mammal science and in its management.

And, gentlemen, this is a responsibility I look forward to meeting, and I would be very pleased to answer any questions that you may have.

Senator BREAUX. Gentlemen, the committee thanks both of you very much for being here. I think it is really rare that the Congress reviews the qualifications of two professionals in the field for which they are being recommended to serve. Certainly in the years I served in the House and regardless of which administration was in power, I know that Senator Stevens and I have always been very, very concerned that the persons appointed to important boards and commissions have the necessary professional qualifications, background and experience. Both you gentlemen bring long credentials in this area from a professional standpoint, something that I certainly appreciate a great deal. I know that the committee has submitted some questions to both Dr. Fay and Dr. Fox for which we have not yet received the answers. I think it is important that we get the answers. I know you have both been on work assignments that have taken you out of the country, but we need responses before the committee can go forward with reporting on your nominations.

Senator Stevens? Questions of these gentlemen?

Senator STEVENS. John, I'm delighted that Professor Fay has indicated a willingness to take on another chore.

I just have one question really of each of you and that relates to the problem of our Eskimo people with regard to the bowhead whale. I assume you are both familiar with the workings of the International Whaling Commission and the actions that have been taken by our government in supporting the positions of the Alaska Eskimo Whaling Commission in the past and the result which I think was a fair one in terms of the last meeting.

Do either of you have any problems with regard to the position that has been taken by NOAA in the past in supporting the Alaska Eskimo Whaling Commission objective to have a stated number of

takings plus? I think it is listed in terms of strikes this year as far as the bowhead whales are concerned. Are you familiar with that, and do you have any problems about that?

Dr. FAY. I have nothing but faith in NOAA's estimate of population size and the number of animals that can be taken without damaging the population. The Eskimo Whaling Commission has done a great deal also to contribute information to that. It's kind of a unique situation I believe.

Senator STEVENS. I think it is unique. I think it is unique because it is part of their culture, as well as an actual physical dependency, I believe, on the continued availability of that meat from the bowhead.

Dr. Fox, are you familiar with this at all?

Dr. Fox. Yes, I am. And I have absolutely no problem with the process and the substance of the way that that is being operated to date.

Senator STEVENS. Good. I want, without embarrassing Professor Fay, Mr. Chairman, to tell you that you will note from his disclosure that he contributed to our current governor's campaign. And that will ring a bell with you because I'm sure you know the governor, as I do. But I happen to believe that partisanship has something to do with the availability of people who know what they are talking about, and so I am pleased that you have taken on this role, as I said, Dr. Fay. And I look forward to being of assistance to you in any way we can.

The Chairman said you hadn't completed responses to the committee questions. I would be pleased to offer you the services of one of my secretaries while you are here if you want to get it done. But that's your call. But he has stated the rule of the committee. We can't proceed with the nomination until the responses have been completed. But if you need any help and we could give it to you while you are here, we would be glad to do it.

Dr. FAY. Thank you.

Senator STEVENS. Dr. Fox, we would make the same offer to you, but I'm sure one of your Senators would be more than happy to provide the same service.

Senator BREAUX. Thank you, Senator.

With the point that Senator Stevens has brought up, tell me as scientists and professionals in this field how we balance or justify the position of our Nation concerning the whaling issue. With regard to the scenario that Senator Stevens outlined, we allow the limited taking of the bowhead, which is on the endangered species list. But as a nation, when it comes to other whaling nations taking species that are not on the endangered species list, our government apparently has a different position.

Do you all have any thoughts about that?

Dr. Fox. Let me go first on that one.

I look upon the bowhead issue as being an exception to the general policy that the government has taken and an exception for very good reasons. In my view there can never be any process that is hard and fast that there cannot be exceptions to. You always have to be open to looking at situations that do not fit your general policy and be willing to look at. Is this an appropriate place for an

exception? And I am perfectly comfortable with the bowhead issue as being one of those exceptions.

I think part of the reason for that is the nature of the need for the use of those whales. Part of the exception is the extensive amount of dollars that have gone into determining what the status of the bowhead population is. Part of it is the fact that the amount of incidental take that is allowed is extremely small relative to the population of bowhead whales and its growth.

Senator BREAUX. Dr. Fay, you have a comment on that?

Dr. FAY. Well, I think the exception is spelled out in the Marine Mammal Protection, that the act allows taking of marine mammals by natives for subsistence use. That is where the exception lies. It is not a commercial taking operation. It's simply for—largely for survival.

Senator BREAUX. With regard to the issue of general taking of marine mammals, what role of importance does the population of that species play in formulating your opinions as to whether any taking at all should be allowed?

Some would argue that regardless of the population status of a marine mammal, none should be taken. Others would argue that if the population can sustain a measured and a manageable take, it should be allowed. My question to you as nominees to the Commission is what is your general philosophical or scientific opinion in that area.

Dr. FAY. I think regardless of what our personal opinions may be—and as far as I can see, they agree with the act anyway—our commitment, if we are confirmed as members of the Commission, is to follow the letter of the Marine Mammal Protection Act.

The population of bowheads—I don't think any of us really know what part that population plays in the marine system. We can make some sweeping guesses I guess, but we don't have any really firm idea of how it fits into the system as a whole. It's a population that has been, as far as we can guess, increasing for quite a number of years now—slowly, but increasing. The eskimo take was going on before the Marine Mammal Protection Act and the population even then appeared to be increasing.

So, the point I guess is that it is an allowable take for subsistence use. It is not greatly influencing the increase of the population back to its former level. It may take some time, but it would anyway.

Senator BREAUX. Dr. Fox?

Dr. FOX. Yes.

Senator BREAUX. I'm particularly interested in the question. I mean, what role does the population of the species play in the decision as to whether to allow the taking of a marine mammal?

Dr. FOX. Well, the Marine Mammal Protection Act calls for marine mammal populations to reach the optimum sustainable population level. And when that is so, the act provides for some taking of marine mammals. So, the act itself is not one of complete and utter full protection. There is taking allowed when a population is at its optimum.

And as a scientist speaking, we know from the understanding of population dynamics, that populations of all sizes, except for when you get below some critical level, have a tendency to grow. And

that growth can be taken so that the population remains stable. So, as a scientist, technically speaking, some taking or a harvesting can be allowed of populations at every level except below that critical level.

Senator BREAUX. I take it that that is also both of your gentlemen's position with regard to the taking of whales as well, or not?

Dr. Fox. Well, my professional position is again that if a population—if you know the level of that population with a sufficient degree of scientific certainty, and you know that it is growing with a certain degree of scientific certainty, and you know that it is above its critical level with a certain degree of scientific certainty, that population is producing animals which is allowing it to grow. And as long as it is within its range of optimum, certain measures of taking for certain purposes can be allowed. And the Congress has allowed taking of marine mammals for purposes that are specified in the act at those levels and under those circumstances.

Senator BREAUX. Dr. Fay?

Dr. FAY. Yes. The act allows for taking if the population is within its optimal range. This hasn't happened because the whales are not within their optimal range. Presumably if they were, some taking could be allowed. Whether it would be or not, I can't say, but it could be.

Senator BREAUX. Gentlemen, you have the questions that were submitted and as we indicated, we need those responses. I understand why we do not have them, but we need them before the committee will go ahead and proceed to a vote.

The professional qualifications that both of you possess certainly are outstanding and should be a credit to the Commission.

We thank both of you.

With that the committee completes its business for this afternoon. We will consider these nominations, I would expect, at the next markup session of the committee, although that is to be determined by Chairman Hollings. The committee will stand adjourned.

[Whereupon, at 2:40 p.m., the committee was adjourned.]

[The following information was subsequently received for the record:]

QUESTIONS OF THE CHAIRMAN AND THE ANSWERS

1. Question: When established in 1972, the primary responsibility of the Marine Mammal Commission was to review existing and proposed programs affecting marine mammals and to suggest changes. Since then, the Departments of Commerce and Interior have had 15 years to initiate and develop marine mammal programs.

   - Has the continued development of Federal marine mammal programs obviated the need for a separate commission? Why or why not?

   - How would you define the objectives of the Commission at the present time?

   Answer: Public attention to and awareness of marine mammal affairs has increased dramatically in the past 15 years. It has demanded an effective, well-reasoned approach by the responsible agencies. The quality of marine mammal research and management programs in the Departments of Commerce and Interior was good in some areas before passage of the Marine Mammal Protection Act, and it has become excellent in some others in the meantime. The improvements in those programs and the development of others since 1972 is largely attributable to the close surveillance by and constructive criticism from the Marine Mammal Commission. Growth still is inadequate in some areas, however, and a continuing Commission role as monitor and critic of Federal programs still is essential to sustain high quality and ensure further improvement. As priorities shift, the Commission with its active staff and Committee of Scientific Advisors remains in the best position to recognize the need for changed emphases and to make objective recommendations thereon. This is not to say that agency programs are completely insensitive or will retrogress through intentional neglect, but only to stress that the peer review which the Commission provides is the most effective way to ensure high quality. Without a separate Commission or an equally competent and active external reviewing body, the programs will not die but their quality will diminish significantly, and the ability to re-orient programs in a timely fashion will also be diminished if not lost.

2. Question: Authorization of appropriations for the Marine Mammal Protection Act will lapse at the end of the current fiscal year. As a part of the reauthorization process, this Committee will be evaluating the effectiveness of the MMPA.

   - How well has the MMPA worked over the past 15 years? How would you compare the present status of marine mammal populations with their status in 1972?

   - What changes in the MMPA would you suggest to improve marine mammal conservation or management?

   Answer: By and large, the MMPA has worked rather well over the past 15 years. It was, afterall, an experiment, and some parts of it have not passed the test of application as well as others. Some of the ambiguities have taken longer to resolve than was anticipated and certain provisions still are considered controversial by some. Nonetheless, these shortcomings are far outweighed by the outstanding successes of the Act. As examples, one can cite the reductions of incidental porpoise catch in the tuna fishery, the international moratorium on commercial whaling, the steps that have been taken to encourage the recovery of endangered species such as manatees and monk seals, improvements in the

care and handling of captive animals, and the initiation of an international effort to address problems of marine debris. I see its main weakness to have been to take research and management authority from the states, some of which had better programs in place before the MMPA was enacted than have been developed since. This problem still has not been resolved to my satisfaction.

Most marine mammal populations in U.S. waters were neither endangered nor threatened before the MMPA was enacted. Those stocks have generally remained the same since then. Others appear to have declined for reasons which we do not understand. Some populations, like those of otters and elephant seals, which were still recovering from the near extinction that had taken place in the previous century, have recovered further. Only West Indian manatees and Hawaiian monk seals, species that appear not to be adaptable to human encroachment, are barely holding their own.

Consideration should be given to changing the MMPA to allow the Federal government to regulate the taking of marine mammals, whatever the circumstances might be, so that proper management programs can be developed. This would also serve to re-open some doors for negotiations on international cooperative management programs for populations not confined to our waters.

I also believe that consideration should be given to making it possible for the development of truly cooperative management by Federal, state, and user groups--not just by Federal or state authorities. In structuring such arrangements, we need to acknowledge and make provisions for the costs that are involved.

3. Question: Fishery-marine mammal conflicts are the subject of increasing concern in both Atlantic and Pacific coastal areas.

- As an expert in marine ecology, how would you assess the seriousness of this problem?

- As Marine Mammal Commissioner, what recommendations would you make to deal with the situation?

Answer: First, my experience with fishery-marine mammal conflicts is largely limited to certain restricted areas of Alaska. I do, however, recognize the general seriousness of the problems elsewhere. This is a field that I intend to investigate thoroughly to increase my usefulness as a Commissioner. I am glad to share my preliminary thoughts now, but ask that you recognize them only as expressions of opinion rather than the result of careful study.

Fishery-marine mammal interactions fall into five general areas: the incidental catch of marine mammals by fisheries; the removal by marine mammals of catch from the gear; damage to the gear by marine mammals; competition between marine mammals and fisheries for the same resources; and the killing of marine mammals through entanglement in lost or discarded fishing gear. Most incidental takes of marine mammals from ship-based fisheries currently are assessed by "observer programs." In these cases, trained observers are put aboard a predetermined percentage of the vessels in that fishery. By extrapolating from the observers' records of the numbers and kinds of mammals taken

in relation to time, place, and fishing effort, estimates of incidental catch are made so as to assess the seriousness of the problem. For shore-based or small boat fisheries, observers are at a disadvantage; they must rely mostly on interviews with the fishermen. The results are generally considered less reliable than those gathered through direct observations, and therefore the extrapolation to the whole fishery may be subject to greater inaccuracies.

While removal of fish, crabs, and other organisms from nets and other gear by marine mammals appears to be commonplace, it is a very difficult problem to assess accurately. Where some parts of the depredated fishes remain in the nets, the losses can be estimated easily enough, but the difficulty lies in determining the number and size of those removed completely from the gear. As far as I know, that problem has not yet been solved and I have no concrete suggestions for its solution.

Damages to fishing gear by marine mammals also are difficult to assess accurately in terms of dollars. Replacement costs are easily estimated, but costs for repairs are more complicated and elusive since they can involve not only costs of materials, the man-hours needed to make the repairs, and the time lost from fishing as well.

Competition between marine mammals and fisheries for the same resources has been assessed in general terms from knowledge of the feeding habits of the mammals, the target species of the fisheries, and the status of the resource. The real magnitude and significance of this conflict or potential conflict is hard to assess, however, in terms of both the fishery and the mammals involved.

As the effectiveness of the MMPA increases and more of our marine mammals populations reach optimum sustainable population levels, conflicts between fisheries and marine mammals probably will continue to increase in frequency and severity. Methods to reduce the impact of the first three types of interactions are either in place or being tested. These include gear modifications, sonic repellants, and evasive action. There now appears to be no way to reduce the fourth, short of reducing the size of either the fisheries or the marine mammal population(s) involved. As a Commissioner, I would encourage further studies to assess and monitor each type of interaction; I would also encourage intensified studies of methods to mitigate impacts on both marine mammals and fisheries.

4. Question: In 1972, less than $200,000 was spent on research and management programs for marine mammals within the Interior and Commerce Departments. Since that time, however, spending on marine mammal programs has escalated. In 1987, the budget for protected species in the Commerce Department alone exceeded $10 million. Although this program covers other protected species as well, the largest part is directed towards marine mammal research and management.

- Are these funds being effectively allocated towards current research and management needs? Please explain.

- What are the strengths and weaknesses of current marine mammal research and management programs?

Answer: The amount of funds devoted to Federal marine mammal programs is not necessarily an indication of either the scope or the quality of those programs. For example, certain kinds of distributional research can be done only with a large amount of logistic support from ships and aircraft, which is very expensive, but the returns from that research can be very small.

For the most part, I have not been privy to the amounts and allocations of funds used by the Federal agencies for current research and management needs, so I cannot comment intelligently on how effectively those moneys were used. Also, I am not yet in a position to address "the strengths and weaknesses of current marine mammal research and management programs."

5. Question: Over the past decade, the effort to conserve marine mammals has achieved some notable successes. For example, commercial whaling has been virtually ended and porpoise mortality from tuna seiners has been reduced sharply.

- What would you identify as the most serious challenges to marine mammal conservation efforts in the foreseeable future?

Answer: To the extent that I am aware, I see the most serious challenge to be the restoration of those few species that already are depleted and appear to be unable to adapt to the encroachment of man upon their habitats. In U.S. waters, those include the West Indian manatee, which appears to be barely maintaining its numbers, and the Hawaiian monk seal, which appears to be continuing to decline, despite efforts to protect and restore it. To save these two from extinction and encourage their recovery will require unusual insight and innovation.

Equally challenging is the problem of preserving marine mammals that are fundamentally at risk from or are adversaries of commercial fisheries. Further development of mitigating measures may help to soften the impact of fishery-marine mammal conflicts, but they probably will not solve the problem.

Lastly, I believe that the U.S. is destroying rather than encouraging international agreements for joint research on conservation of shared marine mammal populations. In particular, I am troubled by what is happening with respect to those species which we share with Canada and the U.S.S.R. Neither we nor they can manage them unilaterally, and to simply ignore them is counterproductive and unrealistic.

QUESTIONS OF THE CHAIRMAN AND THE ANSWERS

I regret that my recent unavailability and my plans for an immediate departure to Australia have prevented me from devoting all the time that I would like to these questions. However, I trust that you find these answers, when viewed in conjunction with my testimony, to be adequate.

1. Question: When established in 1972, the primary responsibility of the Marine Mammal Commission was to review existing and proposed programs affecting marine mammals and to suggest changes. Since then, the Departments of Commerce and Interior have had 15 years to initiate and develop marine mammal programs.

   - Has the continued development of Federal marine mammal programs obviated the need for a separate commission? Why or why not?

   - How would you define the objectives of the Commission at the present time?

   Answer: The need for a separate commission has definitely not been obviated. The programs have not been developed fully nor have all the problems been solved to a maintenance level. Oversight is still required to ensure continued progress in addressing many marine mammal problems.

   In my view, the main objective of the Commission at this time is to ensure that the tenets of the Marine Mammal Protection Act (MMPA) are carried out according to the will of Congress. The responsibilities of the Commission are well described in the Act--perhaps the idea of most general applicability is to provide objective oversight of exceptional quality.

2. Question: Authorization of appropriations for the Marine Mammal Protection Act will lapse at the end of the current fiscal year. As a part of the reauthorization process, this Committee will be evaluating the effectiveness of the MMPA.

   - How well has the MMPA worked over the past 15 years? How would you compare the present status of marine mammal populations with their status in 1972?

   - What changes in the MMPA would you suggest to improve marine mammal conservation or management?

   Answer: The MMPA has been one of the most successful pieces of environmental legislation of the past two decades. Overall, the status of marine mammals has improved significantly. However, on a case-by-case basis the improved condition is not uniform. Indeed, we have seen declines that we do not understand at present in the populations of certain species such as the northern fur seal; we have also seen shifts in problems as in the "tuna-porpoise" problem which has gone from being mainly a U.S. problem to being a Latin American problem.

   I need to review the entire field of marine mammal issues more fully before I would be comfortable suggesting changes. However, this will certainly be one of the Commission's major interests during the reauthorization process.

3. Question: Fishery-marine mammal conflicts are the subject of increasing concern in both Atlantic and Pacific coastal areas.

   - As an expert in marine ecology and fisheries management, how would you assess the seriousness of this problem?

- As Marine Mammal Commissioner, what recommendations would you make to deal with the situation?

Answer: This is an increasing problem on the West Coast because of the success of the MMPA. It is a serious problem now, and it will become more intense in the future.

We need to develop policies for dealing with so-called "problem" animals. Perhaps they can be handled with an appropriate protocol within the current permitting process for scientific research and public display. We also need to deal with the upper end of the optimum sustainable population range, i.e., its definition and practices for those populations exceeding the upper bound. We also need to do a better job of integrating the tenets of the MMPA, the Magnuson Fisheries Conservation and Management Act, and the Endangered Species Act to achieve true ecosystem management.

4. Question: Your biographical statement indicates that you directed the Federal program "dealing with the so-called tuna-porpoise problem." The Annual Report of the Marine Mammal Commission indicates that 368,600 porpoises were estimated killed or injured by the U.S. tuna purse seine fleet in 1972.

- Why do you characterize a mortality source of this size as a "so-called" problem?

- By 1986, incidental take of porpoises by the U.S. tuna fleet had dropped to just over 20,000 animals, a reduction of over 90%. Do you think that similar reductions could be obtained for the North Pacific squid and salmon driftnet fisheries? If so, how?

Answer: The words "so-called" apply to the words "tuna-porpoise" and not to the word "problem." This was clearly a paramount problem which continues as noted above in a transformed manner.

Unfortunately, I do not think similar reduction in marine mammal losses could be achieved in the drift net fisheries. The "tuna-porpoise" problem involved an active, small-scale, and selective fishery with its attendant fishing gear. This lent itself to technological solutions. Drift nets are exactly the opposite; they are large-scale, passively fished, and non-selective. While I believe that progress can and must be made to reduce the incidental mortality of Dall's porpoise in drift nets, I cannot predict that the same scale of reduction per unit time or dollar invested will be achieved.

5. Question: Over the past decade, the effort to conserve marine mammals has achieved some notable successes. For example, commercial whaling has been virtually ended and porpoise mortality from tuna seiners has been reduced sharply.

- What would you identify as the most serious challenges to marine mammal conservation efforts in the foreseeable future?

Without question, the most serious challenges lie in (1) successfully addressing marine mammal/fishery interaction problems; (2) maintaining the recovery regime for the great whales and oceanic dolphins involved with tuna fishing; (3) encouraging the recovery of the West Indian manatee and the Hawaiian monk seal; and (4) determining the causes of the population declines in certain species such as northern fur seals.

79-481 (64)